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ABRIDGMENTS

OF

Specifications

RELATING TO

BLEACHING, DYEING, AND PRINTING CALICO AND OTHER FABRICS, AND YARNS;

INCLUDING

THE MANUFACTURE OF ROLLERS, ENGRAVING, THE PREPARATION OF DRUGS, AND OTHER PROCESSES.

PRINTED BY ORDER OF THE COMMISSIONERS OF PATENTS.

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PREFACE.

THE Indexes to Patents are now so numerous and costly as to be placed beyond the reach of a large number of inventors and others to whom they have become indispensable.

To obviate this difficulty, short abstracts or abridgments of the Specifications of Patents under each head of Invention have been prepared for publication separately, and so arranged as to form at once a Chronological, Subject-matter, Reference, and Alphabetical Index to the class to which they relate. As these publications do not supersede the necessity for consulting the Specifications, the prices at which the latter are sold have been added.

A list of the principal works and papers bearing on the subjects to which this series of abridgments relates is added (see Appendix B), as it may aid any further research that may be thought necessary.

B. WOODCROFT.

May, 1859.

VARIOUS TERMS EMPLOYED BY PATENTEES IN THEIR SPECIFICATIONS TO DENOTE THE SAME OBJECT OR PROCESS.

The "bowl" of a printing machine is sometimes described by Patentees as the "roll," the "bed," the "boll," the "main " cylinder," the "large cylinder," the "printing cylinder," the " cylindrical table," the "impression cylinder," the "printing " roller," the "pressure roller," the "counter pressure roller," the "surface roller," the "pressing roller," a "drum," a "wheel," a "platten," the "printing surface," the "revolving table."

The "mandril" is described as a "rod," a "shaft," an "axis," the "centre," a "spindle," and a "tree."

The "printing roller," called the "shell," the "tube," the "cylin- " der," the "cylindrical printing surface."

"Furnishing roller" called the "server," "transmitting roller," "alimenting roller," "feeding roller."

"Blanket" called "endless web," "travelling cloth," "travel- " ling material," "travelling apron," "surface blanket," "end- " less band."

"Colour box," called the "colour trough," "colour hopper," the " colour server," the "liquor trough."

"Doctor," called the "colour guage," "scraper," "ductor."

"Dye beck," called "dye cistern," "dye furnace," "dye copper,' "dye pan," and "dye vessel."

To tear originally to "teaze."

Terms sometimes used indiscriminately, viz., mixture for compound, mixture for solution, impressing for impression, to dye for to print, angular for circular, to rotate for to oscillate, transverse for longitudinal, vertical for horizontal, a half turn for a quarter turn, simultaneous for consecutive.

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BLEACHING, DYEING, AND PRINTING CALICO AND OTHER FABRICS, AND YARNS.

A.D. 1617, March 11.—N° 1.

RATHBURNE, Aron, and BURGES, Roger.—Sole privilege to "make, describe, carve, and grave, or cause to bee made, " described, carved, and graven in copper, brasse, or other mettall, " all suche and soe manie mappes, plotte, or descripc̄ons of the " aforesaid cittie of London, and of the city of Westminster, and " the suburbs and adiacent parte of them or either of them, and " of our citties of Yorke, Bristoll, Norwich, Canterburie, Bathe, " the twoe vniversities, Oxford and Cambridge, and the towne " and castle of Windsore, together with the suburbs and adioyn- " inge places to them or anie of them, as they or anie of them " shall think most meete and conveniente, and the same soe made, " described, carved, and graven, as aforesaide, to imprinte and " sett forth in paper, parchemente, cloth, or other materialls, and " likewise to imprinte or cause to bee imprinted and sett forth all " and all manner of descripc̄ons and bookes which they or anie of " them shall devise, make, or sett forth, for the better manifest- " inge of or describinge the saide citties and townes, or anie of " them, or for better vnderstanding of the said mappes, plotte, or " descripc̄ons."

[Letters Patent, printed, *4d.* No Specification enrolled.]

A.D. 1617, May 5.—N° 2.

HILLYARD, Nicholas.—Grant of "sole lycence, power, privi- " lege," &c. "dureing the terme of twelve yeares," "to invent, make, " grave, and ymprint [and sell] any picture or pictures of our " image or other representac̄on of our pson," "as well in paper " and parchment as in any other thing or thinge whatsoever fitt " and necessary for the better shewing of his skill and invenc̄on " in this art or mystery, and to that ende and purpose to cause to

" be made, framed, erected, and sett vpp any presse or presses, or
" other instrument or instrumente whatsoever fitt for the im-
" prynting of our pictures," &c., on the payment of " the yearely
" rent or sōme of thirteen shillinge and fower pence of lawfull
" money of England."

[Printed, 3*d*. No Specification enrolled.]

A.D. 1618, February 16.—N° 7.

BAKER, Abraham.—To " make, worke, and compound a cer-
" teyne stuff called 'smault;' and the same so made, wrought,
" and compounded by him" " during the terme of one and thirty
" years," " to vtter, offer to sell, or sell to any pickture makers,
" lymmers, paynters, or other person or persons within this our
" realme of England, and other our dominions or any part, at
" reasonable rates and prices." " To bring by all lawfull and due
" wayes and meanes from any the partꝭ beyond the seas, all and
" all manner of saffer and potashes, and all and every or any other
" stuffe or stuffꝭ or other com̄odityes whatsoever, which are or
" shall be needful or necessary for the making, compounding, and
" perfecting of the said stuff called smault."

Grant of " all and every the smaulte that shall happen to bee
" forfeyted to vs, our heires or successors, for non-paymente
" of the customes, subsidies," &c.; " and all penaltyes and for-
" feitures which shall happen to growe unto us;" and " all and
" every som̄e and som̄es of money and other dutyes which shall,
" may, or ought to happen, come," &c. to the king during the
above term of years arising from smaults, on condition of the payment of " the yearly rent or som̄e of twenty poundꝭ of lawfull
" money of England."

[Letters Patent, printed, 5*d*. See Webster's Reports, vol. 1, pages 9, 10, 11, and 12; Carpmael's Reports on Patent Cases, vol. 1, p. 14. No Specification enrolled.]

A.D. 1619, July 12.—N° 14.*

WOOD, George.—(" No copy of this patent exists on the rolls.
" The following is the entry of the grant in the record books of
" the Great Seal Patent Office.")

" A sp̄ial priviledge graunted to George Wood for twenty-one
" yeares of ' the sole printing and stayning, within England and
" ' Wales, of linnen cloth in colors,' paying yearlie into His Ma^{ts}
" excheq^{r} x^{li}."

[Printed, 3*d*.]

A.D. 1619, October 25.—N° 15.

WOOD, George, and JENKINSON, James.—(" No copy " of this patent exists on the rolls. The following is the entry of " the grant in the record books of the Great Seal Patent Office.")

" A sp̄iall priviledge graunted to George Wood, shewing that " whereas he and one James Jenkinson have invented and found " out ' a waie to printe upon lynnen cloth,' and whereas the said " Jenkinson hath consented & agreed to ꝑmitt the said Wood " to have the whole & sole use and benefitt of the said inven- " c̄on, His Ma^{tie} doth hereby graunt unto the patentee, for 21 " yeares wthin England & Wales, to use and exercise the said " invencon, paying yearlie into His Ma^{tis} excheq^{r} a rent of x^{li}."

[Printed, 3*d.*]

A.D. 1624, January 22.—N° 28.

SHIPMAN, William.—Grant to " vse, exercise, practise, and " putt in vse, the sowing, setting, and planting of the herabe, " roote, or plant called madder, of bringing of the same to his " full ꝑfeccion of growth, and also to vse, practise, and put in vse " the misterie, arte, and science of breaking, drying, dressing, and " ꝓparing the same for dying; and alsoe to sett in anie place or " places within our said realme of England and dominion of " Wales, and towne of Barwicke, anie house or houses, vessell, " engines or engine, madder, milne, kilnes, and other instrumentꝭ " whatsoever, fitt and necessarie for the putting in use and " practise of the said sowing, setting, planting, breaking, drying, " dressing, and ꝓparing of the said hearbe, roote, and plant called " madder as aforesaid, and the same soe made to vtter and sell " in grosse, or by retayle, att his and theire free will and pleasure, " for his and theire best com̄oditie and ꝑffitt." For the " terme " of one and twentie yeares next ensuing."

On condition of the payment of the like amounts as are levied on the various madders imported, that is to say, " for euerie hun- " dred weight containing five score and twelue poundꝭ of cropp " madder, and all other bale madder, the sōme of two shillingꝭ " of lawfull money of England, and for euerie hundred weight as " aforesaid of fatt madder, the sōme of one shilling three pence of " like lawfull money of England, and for euerie hundred weight " as aforesaid of mill madder, the some of two pence of the like " lawfull moneye."

[Letters Patent, printed, 4*d.* No Specification enrolled.]

A.D. 1630, January 21.—N° 50.

RAMSEYE, David.—" To make all sorts of tapistrie without " any weaving loome or way ever yet in vse in this kingdom."

[Letters Patent, printed, 4*d*. No Specification enrolled.]

A.D. 1634, January 29.—N° 68.

RAMSEY, David.—" A new waye of dyeing of woollen and " lynnen clothes, stuffe, silkes, and other manufactures, in any " kind of coloure, without the helpe or vse of cutchinell, that shall " be as ꝑfecte, ꝑmanent, and lasting as any grayned coloure soe " dyed with the said cutchinell, and that the said coloures and " dyeing, by him and them soe invented as aforesaide, shalbe " ꝑformed and done by the only vse of matteriall naturally " groweing and arising within our owne domynions."

[Letters Patent, printed, 4*d*. No Specification enrolled.]

A.D. 1634, June 24.—N° 71.

ROTSIPEN, Arnold.—Grant of " full and free liberty, licence, " power," &c, " dureinge the terme of fowerteene yeares," " to vse, " exercise, practise, sett vpp, and putt in vse in our said howse " and storehowse att the Minoritꝭ only, and not elsewhere," " manie engines and instrumentꝭ fitt for our service."

Among the number of new engines specified in the grant is " a pressinge or printinge engine with wheels and rolls, after his " peculiar manner," on condition that " an Englishe apprentice " or servant, Englishe apprentices or servantꝭ" " be carefully instructed in the several sciences aforesaid."

[Printed, 3*d*. No Specification enrolled.]

A.D. 1636, March 25.—N° 99.

GREENBURY, Richard, and GREENBURY, Edward.—For the practise of " painting with oyle cullors upon woollen cloth, " kerseys, and stuffes, being pper for hangingꝭ, and alsoe with the " said cullors upon silke for windowes." There is no information in the Letters Patent as to the mode by which the " practice of " painting with oyle " was carried out.

[Letters Patent, printed, 3*d*. No Specification enrolled

A.D. 1637, May 18.—N° 106.

MASON, Samuell.—" A waye to make and dye the same " (buckomes and tillettꝭ) of all colours in whole peeces, which " will sett many of our poor subjectꝭ on work, and doe much " good in generall." It appears there was then a " greate abuse " in the makeing of buckromes and tillettꝭ with ould rotten " peeced stuffꝭ, and cloathes, which comes from beyond the seas, " none being made within this kingdome."

Granted for the term of fourteen years, on the payment of two shillings and sixpence for every dozen pieces, none of which are to exceed the length of six yards.

[Letters Patent, printed, 4*d*. No Specification enrolled.]

A.D. 1660, February 1.—N° 128*.

TOMLYN, George.—Grant for fourteen years of all the priviledges arising from " a new manufacture or way to text and " flourish velomes and parchmentꝭ in blacke and white, with our " royall name, both in Latine and English, with our portraicture, " impiall armes, badges, and other ornamentꝭ, better and more " exact then the name and title of any former king hath heretofore " been done by any other pson, for such reasonable rates as here " doth and will take for the same ; and that the said manufacture " is wrought with a rolling printing presse and ingraven plates, " and is of much benefitt and advantage to our subjectꝭ, in " respect as good worke otherwise wrought cannot be done for " tenne times the price."

[Printed, 3*d*. No Specification enrolled.]

A.D. 1660, February 1.—N° 128.

TOMLYN, George.—Surrender of grant for fourteen years of all the priviledges arising out of a " new invenc̃on or manufacture " to text and florish vellums, parchmentꝭ, or paper, in black and " white, with his Maiestes royal name, both in Latine and English, " with his Maiesties portrairture, imperiall armes, badges, and " other ornamentꝭ."

[Printed, 3*d*. No Specification enrolled.]

A.D. 1662, February 1.—N° 137.

TOMLYN, George.—Grant for fourteen years of all the priviledges arising from " a newe way to text and flourish veloms and " parchmentꝭ with our name, pourtracture, imperiall armes, badges, " and other ornamentꝭ, by printing the same with a rolling print-" ing presse and engraven plates, to the great benefitt of our sub-" jectꝭ, for that as good worke otherwise wrought cannot well be " afforded for tenn tymes the price, the worke being likewise very " neate and of good ornament to our Letters Patentꝭ and other " exemplificac̃ons."

[Printed, 4*d*. No Specification enrolled.]

A.D. 1668, March 2.—N° 158.

HOWARD, Sir Phillip, Knight, and WATSON, Francis.—A grant for " fowerteene yeares " to " vse, exercise, employ, and " enjoy " the invention of " a certaine way of graving, garnishing, " and colouring of shipys, barges, wherries, and other vessells, " and alsoe for the garnishing, colouring, or varnishing, in " ymitation of gilding and otherwise, of wood, iron, stone, plaister, " and other thingꝭ, by a liquor drawne from certaine graine grow-" ing within this kingdome of England, and some other ingre-" dientꝭ, being their owne invenc̃on, and never before vsed in this " our kingdome, w^{ch} way of graveing will not onely ꝓserve the " said shipps and vessels more than ordinary graveing, but will " alsoe render the said shipps or vessells, by the smoothnesse " thereof, apter to sayle; and the said way of varnishing, gar-" nishing, and colouring of wood and other thingꝭ is of great " and long endurance, and much cheaper than what hath byn " hitherto vsed."

[Printed, 3*d*. No Specification enrolled.]

A.D. 1670, February 3.—N° 159.

BURNEBY, Eustace.—Grant for " fourteene yeares " to " vse, " teach, practise, and putt in vse " the " art and mistery " of " husbanding, ordering, and ꝓpareing of rice and saflower," on payment into the " Exchequer the yearely rent or sum̃e of thirteene " shillingꝭ and four pence."

[Printed, 3*d*. No Specification enrolled.]

A.D. 1670, September 22.—N° 160.

SMITH, James.—"Planting and making of madder within any " convenient place within the kingdom of England and dominion " of Wales."

[No Specification enrolled.]

A.D. 1675, April 20.—N° 179.

TOGOOD, Thomas.—Grant for fourteen years to " vse, practice, " exercise, and enjoy " the newe invention of " a certeine engine " with tubes and baggę for the raysing of water;" " as also a " newe art and mistery never heretofore knowne for tingeing of " silks, sattens, and stuffę by way of impression and otherwise, to " the lyvelynes of painting in all kindę, of figures and landskipp " for the vse of hangingę and any other furnitures answereable " therevnto, or of the like nature."

[Printed, 3*d.* No Specification enrolled.]

A.D. 1675, June 11.—N° 181.

THOMAS, Captaine Gilbert.—Grant for "foureteene yeares" to vse, practice, exercise, and enjoy the art " of making out of the " vseless dust or powder of indigo, stone blewe, flatt indigo, and " powder blewe, such as is made in Holland and these partę, very " vsefull and necessary for the rensing and cleansing of lynnen " cloaths."

[Printed, 3*d.* No Specification enrolled.]

A.D. 1676, August 15.—N° 190.

SHERWIN, William.—Grant for fourteen years, for the " sole " vse, fruit, & benefitt" of the invention of " A new and speedy " way for printing of broad callicoe & Scotch cloth, with a double " necked rowling presse, which being the only true way of East " India printing and stayneing such kind of goodę, was never " till now performed in our kingdome of England or dominion of " Wales, and therefore may, as we are credibly informed, & doe " beleive, bee no small vse & advantage to our loveing subjectę."

[Printed, 3*d.* No Specification enrolled.]

A.D. 1678, March 26.—N° 201.

HOWARD, Charles.—Grant for fourteen years of the "sole " licence of exerciseing and vseing" the following invention of

" A new art and way of prepareing and whitening hemp and flax " by the help of liquors and engines, a better, speedier, and more " vsefull way then hath yet been practised in any of our dominions, as by experience is manifested; and that by this new " way of ordering hemp and flax the naturall strength and goodnesse of it is ꝓserved, soe that cables and all sorts of cordage may " be made thereof considerably lesser, lighter, and yet stronger " than any now in vse, and that it may alsoe bee spunn finer, " stronger, and soe smooth and compact that it may be woven into " all sorts of cloath, without the charge of paste or other stifning " or the trouble of boyling, which wasts neare a quarter of its " substance, soe that the cloath thus made will be thicker, stronger, " and finer, and thereby fitter for sayles, fine linnen, and " thread, being halfe whitened by this art before it bee spunn; the " whitening itt wholly in cloath rotting and almost spoyling it " before it comes to be vsed."

[Printed, 4*d*.]

A.D. 1686, January 9.—N° 249.

DUPIN, Nicholas; DE CARDONELS, Adam; DE GRUCHY, Elias; REGNAULT, Marin; DE MAY, James; and SHALES, Robert.—" Being encouraged by vs to improve the " art of makeing all sorts of writeing and printing paper, and to " imprint our armes vpon such paper, they have lately brought " out of France excellent workemen, and have already sett vp " severall new invented mills and engines for makeing thereof, " not heretofore vsed in England, and made severall quantities of " paper, haveing been at vast charges in the ꝓmisses engageing " the French artificers to instruct in the said art such English " ꝑsons, as the petic̃oners shall take apprentices." Upon these grounds the Letters Patent were granted.

[Letters Patent, printed, 3*d*. No Specification enrolled.]

A.D. 1691, November 6.—N° 284.

GIFFORD, Nathaniel.—Grant during the " terme of fourteen, " years " " of speciall lycence, full power," &c., " to make, vse, " exercise, and enjoy the invention " of a " new, better, and " cheaper way of makeing all sorts of blew, purple, and other " coloured paper," " by severall wayes, meanes, methods, engines, " and instruements."

Printed, 3*d*. No Specification enrolled.]

A.D. 1692, May 23.—N° 296.

BAYLY, William.—"Making a new sort of glazed printed "hangings made of cotton, worsted, or woollen yarn, of all sorts "of curious figures and landskipps, which for beauty of colours, "exactness of figures, strength, and gloss is hard to be distinguished from the finest silk tapestry hangings brought from "forreigne parts."

[No Specification enrolled.]

A.D. 1692, October 18.—N° 304.

BAYLY, William.—"Printing all sorts of paper, of all sorts "of figures and colours whatsoever, with severall engines made of "brasse and such other like metalls, with fire, without any paint "or staine, which will be usefull for hanging of rooms and such "like uses."

[No Specification enrolled.]

A.D. 1692, October 19.—N° 305.

GIFFORD, Nathaniel.—This is also a grant, and is in correction of the grant A.D. 1691, N° 284. By this patent the grant is made to extend to the making of engines for the purpose of "beautifying, figuring, imprinting, and imbellishing" the papers referred to in the previous patent.

[Printed, 3*d*. No Specification enrolled.]

A.D. 1693, July 21.—N° 323.

KEMP, Abraham.—This invention relates to the preparation of orchil and litmus. In the Letters Patent it is stated that Abraham Kemp has "made it his businesse to discover and finde out the "art or mistery of makeing orchall and litmus (comonly called "or knowne beyond the seas by the name of lackmus) not heretofore vsed or practised in England, and that he hath at length "attained to a perfection of makeing the same, and that severall "of the ingredients whereof it is made are of the groweth and "product of England, and other nations have of late made it "their sole businesse in their dying trade to intermix this new "art or mistery in their severall colours, and particularly in scarletts, crimsons, claret colours, blews, purples, and others, whereby "they have found great help and advantage, and that the like "advantage will be to the publique in this kingdome.

[Letters Patent, printed, 3*d*. No Specification enrolled.]

A.D. 1693, September 19.—N° 325.

ELLISTON, Mathew, DODSWORTH, Robert, WEALE, Samuel, and MAN, Robert.—Grant for "fourteen yeares" "of "speciall lycence, full power, sole priviledge and authority," "to "enjoy the sole vse, exercise, benefitt, profit, comodity, and advan-"tage" of the invention of "severall wayes of manufacturing and "ordering certaine rootes and barkes with other ingredients, soe "as to make them very vsefull for dying of silkes, wrought and "vnwrought, and woolleen and linnen cloath in many sorts of "colours, in graine and otherwise, with or without fire, and will "also be vsefull for limners and painters, and for perforateing "glasse, and for divers other purposes."

[Printed, 3*d*. No Specification enrolled.]

A.D. 1694, April 10.—N° 332.

POUSSETT, Francis.—Grant for "fourteen yeares" of "espe-"ciall lycence, power, priviledge, and authority" to "erect, vse, "teach, exercise, and put in practice and enjoy all the benefits, "&c., arising from the invention of 'a new way of preparing "'crapes, and all other sorts of woollen stuffs and silks, in flowers, "'ramages, and in all other figures whatsoever before they be "'dyed, but which appears, after the dying of them by the dyers, "'in different colours vpon the same piece.'"

[Printed, 3*d*. No Specification enrolled.]

A.D. 1694, October 17.—N° 336.

THENNEMANS, Simon.—"To print vpon oyl cloath, as also "vpon all sortꝭ of leather, gold and siluer flowers, and other "figures, in all sortꝭ of colours, which said flowers and figures so "printed will endure wett and dry weather, and will last as long "as the stuffe itselfe."

[Letters Patent, printed, 3*d*. No Specification enrolled.]

A.D. 1695, August 6.—N° 343.

LANE, Ralph.—"Making and ꝑducing colours in cloath and "all other sortꝭ of manufactures in woollen or silk, simple or com-"pound, in figures, flowers, forrestry, and landskips, and dying "on one side only by diverse wayes and meanes."

[Letters Patent, printed, 3*d*. No Specification enrolled.]

A.D. 1715, November 19.—N° 400.

DUBISON, Peter.—" A new peculiar way or method of printing, dyeing, or staining of callicoes in grain, with colours more " bright and lasting, and which shall bear washing and weather " much better than any heretofore vsed in Europe, and that such " callicoes shall equal if not exceed in beauty and vse those stained " in the Indies."

[Letters Patent, printed, 3*d*. No Specification enrolled.]

A.D. 1716, February 18.—N° 403.

MASTERS, Thomas.—Grant for " fourteen yeares " of " especial " lycense, full power," &c., to " vse, exercise," &c., and " enjoy " the whole profit," &c., arising from the invention of " a new " way of working and staining in straw, and the platt and leaf of " the palmeta tree, and covering and adorning hatt℮ and bonnett℮, " in such a manner as was neuer before done or practised in " England or any of our plantac̃ons."

[Printed, 3*d*.]

A.D. 1719, February 5.—N° 423.

LE BLON, James Christopher.—Grant for fourteen years for " a new method of multiplying of pictures and draughts by a " natural colleris with impression."

[Printed, 3*d*. No Specification enrolled.]

A.D. 1721, July 7.—N° 432.

HARRIS, John, SENEX, John, and WILSON, Henry.—" A " new method of proiecting sea charts for the vse and improvement of navigation, which being agreeable to the globe as truly " representing the globular surface of the sea, they humbly apprehend may be properly called a globular chart, and that thereby " all navigators may perform their voiages with much more facility, " certainty, and security, than hitherto has been done by any " method℮ of the plane or Mercator's chart, they having submitted " specimens thereof to the examinac̃on of severall able mathematicians, navigators, and astronomers, and particularly to our " trusty and welbeloved Sir George Byng, Sir John Jennings, " Sir Charles Wager, Sir Edmund Halley, Regis Professor of

" Astronomy, and Captain John Merrey, of the Trinity House, " who approved of the same, and the said Doctor Halley and " Captain John Merrey had vouchsafed for the promoting so " publick a benefit to certify the excellency of this chart, and to " recom̄end it to all navigators for its vse at sea in great circle " sailing and other improvementꝭ, the which certificates or testi- " monials are ready to be produced."

[Letters Patent, printed, *4d.* No Specification enrolled.]

A.D. 1722, May 16.—N° 444.

SINCLAR, George.—"The sole vse and exercise in our plantac̃ons in America, for the space of fourteen years in raising and " cultivating the plantꝭ which are commonly called or do produce " the balsam of tolu, pero, and capair; dragon's blood, colsquin- " tida, scam̄ony, rhubarb, contra herba, coffee, alkermes, jalap, " gutta gamba, jesuit's bark, ippecacuana, agaric, and the sole " breeding and curing the insect com̄only called cochenele, and the " cultivating the plant or plantꝭ for the effects aforesaid, which " they feed or live vpon."

[Letters Patent, printed, *4d.* No Specification enrolled.]

A.D. 1723, February 6.—N° 453.

TAYLOR, Samuel.—"Engine for the stamping and dressing of " thread."

[No Specification enrolled.]

A.D. 1724, January 28.—N° 461.

REDRICH, Robert, and JONES, Thomas.—Grant for "fourteen yeares" to "enjoy the whole profit, benefit, com̄odity, and " advantage" accrueing from the invention of "A new art or " method as well for staining, vaining, spotting, clouding, " damasking, or otherwise imitating the various kinds of marble, " porphiry, and other rich stones and tortoishell, on wood, stone, " and earthenware; and all and every such goods, wares, utensils, " and things as are cut, made, or fashioned thereout, as for mak- " ing, marbling, veining, spotting, staining, clouding, and damasking any linnen, silks, canvas, paper, and leather."

[Printed, *4d.* No Specification enrolled.]

A.D. 1731, May 20.—Nº 530.

POPE, SAMUEL.—Grant for fourteen years "A new art for "marbling paper with a margent, never practised by any person "whatsoever before he invented it, which is performed by a "method entirely new, by taking off the colours from a body of "water prepared after a particular manner, with a proper strength "for supporting the said colours, and make them flow upon the "surface of it, whereby the said colours are more easily taken off "upon paper; which will be of very great service to the publick, "by preventing the counterfeiting of merchant notes, bills of "exchange," &c.

[Printed, 4*d*. No Specification enrolled.]

A.D. 1736, February 14.—Nº 552.

COLES, JOSHUA.—"A liquid blue which far exceeds any stone "or powder blue heretofore generally used for the blueing of "washed linnen."

This liquid blue is stated by the patentee to consist "in manner "and forme following, that is to say, of tean pounds of the finest "French, Jamaica, or Spanish indico, ground in water very fine, "to which is put one pint of lavender water; then boyl it, and "press it through a thick flannell bagg."

[Printed, 3*d*. See Rolls Chapel Reports, 6th Report, p. 155.]

A.D. 1742, August 7.—Nº 586.

CHAPPELL, DANIEL.—"The art of printing several sorts or "species of woollen manufactures of their several kinds, such as "goods made of all wool, goods made of worsted and silk, "mohair & silk, and of plain mohair of their several kinds." This invention consists in printing with blocks a red mordaunt, composed of "allom, arsnick, white argyl, chalk, and saccarum "saturni, mixed altogether in liquor thickened with gum arabick, "which produces several different colours when dyed." The addition of "vitriol of Mars" to the above materials will "narigate" the colours into stronger and weaker shades. The patentee also proposes to prepare the goods with "shewmack," so that colours printed thereon are struck at once without dyeing; and likewise to fix colours by passing the goods, after printing through "cold liquors of vitriol of Mars." When printing "with

" prints made chiefly of lead," a reserved paste composed of glue or other glutinous substance is used to preserve the white where it is wanted in the pattern.

[Printed, 3*d*. See Rolls Chapel Reports, 6th Report, p. 120.]

A.D. 1743, March 10.—N° 589.

KEEN, William, and PLATT, Moses.—" 'A machine for painting or printing histories, landskips, prints, flowers, and various other descriptions, according to the drawings or designs which may be required or thought proper to be imitated upon silks, cottons, linnens, stuffs, woollen cloths, and other manufactures for wearing apparel, furniture, or otherwise, made of or mixed with wool, silk, linnen, or cotton;' by which invention such manufactures may be printed or painted to bear the resemblance of tapestry and of needlework done by the most curious hands." The machine represented in the drawing attached to the Specification is a three colour cylinder printing machine. The three cylinders or bowls are mounted in a frame, one behind the other. Over each bowl there is an engraved roller; and above the latter is placed a roller for feeding the colours. There are also screws to tighten them together. The upper roller feeds the engraved roller and acts as a doctor at the same time in cleaning it. The cloth passes between the engraved rollers and the bowls, and is printed in different colours in succession by the first, second, and third rollers. The engraved rollers and feeding rollers are driven by cog wheels and intermediate wheels.

[Printed, 5*d*. See Rolls Chapel Reports, 6th Report, p. 121.]

A.D. 1748, March 19.—N° 630.

PAUL, Onesiphorus.—" A method of preparing cloths intended to be dyed scarlet, so as more effectually to ground the said colors, and preserve their beauty, and also of taking out all such lints, spils, and other things which will not receive the dye, so as not to leave any hole or blemish whatsoever therein after they are dyed and finished." This invention may be performed in the manner following:—" To two pieces of cloth before it's milled I put into the furnace seven pounds of argull, one pound and a half of turmerick, two pounds of cocheneal, and two quarts of aqua fortis, properly prepared as follows:—To half an ounce of sal amoniack put four pints of water and eight pounds of spirits of aqua fortis, and one pound of block tin. The block tin must be put in at four times: first put in one half of the spirits to all the water, and one third of the tin; the remainder of the tin and spirits put in at four times. The principal art is in preparing or dyeing in part before milled, which was never known to be practicable before, and the com̄on methods of preparing will do (but as aqua fortis is an enemy to the proof of the cloth, therefore I use a much less quantity in the preparing and more in the finishing); then I pick out the lints and spills, then mill the cloths and dress them, so that the milling and dressing closes up the holes. Then I finish off the dye with two pounds and an half of argull, four pounds and a quarter of cocheneal, half a pound of turmeric, and six quarts of aqua fortis, and boyl them three quarters of an hour. I also dye the wool." The preparation and method is the same for wool.

[Printed, 3*d*. See Rolls Chapel Reports, 6th Report, p. 123.]

A.D. 1748, August 8.—N° 635.

SPENCE, George, DOLBY, Charles, and WEGUELIN, John Christopher.—"The art or mystery of dying green and blue Saxon colours." This invention is to be performed in manner following:—"Take one pound of oyl of vitriol, and put it into an earthen vessel, then add to it two ounces of indigo, properly pulverized, and one ounce of arsenicum rubrum, or red arsenick, pulverized in like manner, together with four ounces of cobalt, or four ounces of bole armoniack. These are the materials of which the blue saddening is to be composed, all the foresaid ingredients being well stirred together. Then to prepare for the boiling the said colours in a kettle or copper, we put allum and argol with liquor, as if for a common boiling. For green Saxon colour we boil old or young fustick, with which we make a fatt. Then use the blew saddening sufficient to make the colour to your mind. For the Saxon blew we use the saddening before menc̃oned with clear water, being first boiled off, after the manner before mentioned."

[Printed, 3*d*. See Rolls Chapel Reports, 6th Report, p. 123.]

A.D. 1751, January 22.—N° 659.

ELLIOTT, John.—"A particular art and method of printing, painting, staining, and colouring of flannells and other wool-

" lens." "The operation is effected by models cutt according to " the pattern intended, so many colours, so many pair of modells " fitted to each other; the flannells or other woollens intended to " be printed, painted, stained, or coloured are laid between these " models, and the colours then poured through the models."

[Printed, 3*d*. See Rolls Chapel Report, 6th Report, p. 125.]

A.D. 1753, April 10.—N° 681.

MOLE, KEYSER.—" A new method of bleaching, whitening, and " beautifying of hatts, com̄only called leghorn hatts, and other " hatts, and the platts whereof the same are made, and also sundry " other goods, wares, and merchandizes, made either of straw, " chips, cane, or other materials respectively, and of restoring " such of those sort of goods to their original or rather superior " colour and goodness as have by any accident been stained, " soiled, mildewed, or otherwise spoiled or damaged." "Put the " said hatts and goods above mentioned into a vessel that will " hold them, with two ounces of salt of tartar, four ounces of " lixivious, lixivial, or lixiviate salts of vegetables, as pot ashes, " pearl ashes, barilla, kelp, or any other ashes or alkaline salts of " vegetables well rectified, and two ounces of flower of sulphur, to " every gallon of water; let them remain therein half an hour, " then clean them off with water and dry them. Then put them " again into fresh mixture as above, to every gallon of which add " one pint of the juice of lemmons, limes, crabbs, or other fruits " or acids of vegetables, or in such other greater or lesser quantity " or proportion, as the nature and quality of the goods, or the deficiency of colour, or degree of damage of the goods, shall require; " for in such case the deficiency of colour and the damage of the " goods and experience only must direct and ascertain the quantities and proportions needful. Let them remain in this second " mixture an hour, more or less, as occasion shall require, then " take them out and put them into a sweating room for twelve " hours. When dry put them into milk or butter milk for " twenty-four hours, or longer, if the condition of the goods shall " make it necessary. If the goods are spotted, stained, mildewed, " or otherwise damaged, you must thus do them as above twice, " thrice, or four times over. Then clean them off with water, and " dry them. Then, with a brush, do them over with a liquor " made after the following manner (to wit) take one ounce of "tartar of vitriol, one ounce of barilla, one ounce of kelp (or the "like quantity of any other vegetable salts or ashes, or more "or less thereof, according to their strength), one pound of "rind or bark of mulberry tree, one dram of smalts, indigo, or "Prussian blew (first dissolved in a spoonful of spirit of wine), "to two gallons of water, which must be twice boiled. Then dry "them and fumigate them with brimstone. At last, to beautify "them further, boyl half a pound of isinglass in four quarts of "water and a pint of the best clean rectified spirits. Wet them "with this mixture, then fumigate them with brimstone, and put "them between hot iron plates."

[Printed, 3*d*. See Rolls Chapel Reports, 6th Report, p. 127.]

A.D. 1753, August 22.—N° 685.

DIGHTON, EDWARD.—"An entire new method of manufac-"turing paper for hanging and ornamenting of rooms, and other "purposes, and that the same will be of great use and benefit to "the publick." The Patentee "craveth or etcheth his design or "pattern [on copper plates, or plates of brass, pewter, iron, tin, "steel, gold, silver, or any compound metals] with a graver or "needle, after which the design or pattern is impressed on paper "under a rolling press for hangings used as furniture for rooms, "closetts, &c.; and when so done the aforesaid paper is painted "or coloured by hand, with pencils called camell hair pencils." "The colours and stains used" are as follows:—"For a blue, "prussian blue ground in vinegar; for a red, carmine mingled in "vinegar; for a yellow, saffron steeped in boiling water; for a "green, sap green steeped in vinegar; for another green, verdi-"grease ground in vinegar; for a brown, tobacco stalks steeped "in boiling water; for a purple, carmine mingled with prussian "blue. Colours used in printing off the aforesaid plates are, "Frankfort black, brown umber, rose pink, rock indigo. Gold "size in gilding the afores^d work is made of linseed oyl, amber, "red lead, umber, and turpentine oyl boyled and mingled all "together. Another gold size is gum arabick, sugar candy, and "vermilion, boiled together."

[Printed, 3*d*.]

A.D. 1754, July 3.—N° 692.

BOWSER, GEORGE.—"An art or mistery of embossing, printing, "or staining callimancoes; and also a further valuable and great

" improvement in the embossing trade, by shading the colours on
" all sorts of woollen goods."

"The method of embossing, printing, or staining callimancoes
" is, first, to take them as they come from the weaver's hands,
" and cleanse them well from the grease; after which boil them
" in suds prepared of white argol, alum, and wheat bran, the pro-
" portionate quantity of which is one pound three-quarters of
" alum, and two ounces and one half of white argol to each
" piece, in which let them boil two hours, then dye them of the
" ground colour proposed; after which cleanse them in fair water,
" and then imboss, print, or stain them on a copper plate designed
" and engraved for that purpose.

"The method of shading the different colours used in the im-
" bossing on all sorts of woollen goods is thus:—Let the design
" or pattern be very neatly and deeply cutt or engraved on copper
" plate, every way something bigger than the pattern or design,
" and for every different colour to be shaded there must be a thin
" plate fixt on an iron frame to fit and cover the engraved plate;
" which said thin plate, or some other instrument fitted for that
" purpose, must be exactly and neatly cut quite through in all
" such places as are wanted to shade the colours; and after each
" colour is filled upon the engraved plate through the said thin
" plate (or other instrument) cut for that purpose, clean the
" engraved plate before the other colours be laid on, and then put
" the engraved plate into the press in the usual manner."

[Printed, *3d.* See Rolls Chapel Reports, 6th Report, p. 128.]

A.D. 1754, November 26.—N° 694.

MAW, ROBERT, and BISHOP, THOMAS.—" A liquid blew,
" which by experience had been found to be greatly preferable to
" other blews in blewing of linnens, cottons, &c." It is prepared
in the following manner:—" To twenty gallons of water (in
" which four ounces of potash has been dissolved) put ten pounds
" of bay loggwood; boil them one hour. Then add five pounds
" of glue, which keep stirring till all is dissolved. Then add of
" pounded allum two ounces. When cold put it in bottles
" for use."

[Printed, *3d.*]

A.D. 1755, July 22.—N° 702.

BAHRE, JOACHIM ANDREAS.—" A method of printing and
" painting paper, silk, cloath, and canvas, in gold, silver, and

" brocade colours, which for its beauty in colour far excelled any-" thing of that kind ever yet made, and would neither wash out, " fade, nor tarnish, and would be of great use in the making of " paper, silk, cloth, canvas, and all other hangings and furniture, " and could be afforded to be sold near as cheap as the midling " sort of paper hangings." The manner in which the same is to be performed is as follows :—" First take two pounds of glue, " and put it into three quarts of water, and let it boil until the " glue is dissolved, and with this let the paper be twice primed " over in all the cases after mentioned. With respect to the " silver hangings, take a quarter of a pound of sugar, white, " and put it into two quarts of linseed oyl, and boyl them " together, until the oyl grows blackish or changes colour, and " with this liquid let the paper be sized over, and when almost " dry then lay on the silver. With respect to the gold hangings, " take three quarts of linseed oyl, and put into it lythaugirium " argenteum, lythaugirium aureum, red lead, and ombra, a large " spoonful each; let them boil together for about an hour, and " with this liquid let the paper be sized over, and when almost " dry then lay on the gold. With respect to the brocade colours, " take three quarts of linseed oyl, put into it a middle sized " onion, boil it until the scum turns blewish, and with this liquid " mix the colours. With respect to linnen, cloth, and canvas, " the same method is to be pursued, except that the linnen, cloth, " or canvas are not to be primed, nor must the oyl be boyled, but " instead thereof the oyl is to be mixed with lythargirium argen-" teum, in the proportion of a large spoonfull to each quart of " oyl."

[Printed, 3*d*. See Rolls Chapel Reports, 6th Report, p. 128.]

A.D. 1758, August 12.—N° 727.

GORDON, George, and GORDON, Cuthbert.—" A most " valuable and beneficial dye, which we call cudbear; which said " dye is of the most efficacious nature in dying crimson and " purple, so as in a great measure to supply the use of the " archelia or Spanish weed, and is entirely composed of materials " the produce of Great Britain or of His Majesty's plantations." The name of the first ingredient used is " lichen," being a vegetable that " grows on rocks." The second ingredient is " *muscus rupibus* " *admisceus*, or *coroloides*," being a plant which mostly grows on

" shattered rocks, where it can have a small portion of earth." The third is "*muscus pyxidatus*, being a plant that grows in low moorish " grounds." "When these three ingredients are gathered, cleanse " them from all their filth by laying them severally in cold water, " changing the water daily so long as any filth remains among " them. Then dry and pound them in a mortar, and dilute them " with spirit of wine and spirit of soot, to which add quick lime. " Digest them together for fourteen days, and they will produce the " cudbear fitt for dyer's use; a more solid kind of which may be " obtained by continued digestion of the several ingredients for " fourteen days more, when it will grow into a paste and harden " like indigo."

[Printed, 3*d*. See Rolls Chapel Reports, 6th Report, p. 129.]

A.D. 1758, December 22.—N° 733.

BROWN, HENRY.—" A new art and method of dying, staining, " and stamping of stockings and other apparel in all sorts of " colours."

" First, make prints of metal, cutt or cast to the figure intended " to be dyed, stained, and stamped in any colour or colours; " make the prints hollow, or with cavities to hold the colours, " with or without one or more funnels, according to the number " of colours to be dyed. Let there be a print placed on each " side of the stocking, the figure of the clock, and lay them in " a press made of iron or brass, with top and bottom plates, and " screws and nuts to confine the same, first a print, then a stocking or stockings, and then a print, till the frame be full; then " fix the top of the press on the screws, then fix on the nutts and " sett them down fast together, then prepare the colours intended " for the same prints. Take such colours as fancy directs, and " then put the same into the funnells or cavities to run or dye " their respective figures or flowers; wet them in a copper of " water, then take them to the blue vats; let them be in the " same to match the stocking to the pattern and the figures; dye " in the prints at the same time, or at separate times, and other " apparel in like manner, or any colours in the same manner or " way. Then take them out, wash them and trim them, and they " are both beautifull and fit for foreign or home consumption."

[Printed, 3*d*. See Rolls Chapel Reports, 6th Report, p. 130.]

A.D. 1761, February 5.—N° 758.

HAYTER, William.—"New composition and peculiar method "for staining of leather." "The buck, doe, or sheepskins, being "properly dry are brushed clean for imbibing the colour, are—

"First, wetted over with a brush with a liquor prepared with "oak sawdust and pomegranate shell, with a mixture of some "acid wine drawn from the lees lukewarm.

"Secondly, prepare a strong logwood liquor in proportions "ten pounds chips to twenty gallons. This second liquor is "mixed with a little of the former and wetted over once.

"Thirdly, prepare this liquor by boiling a pound of galls, and "a little quantity of pearl-ashes, for a third time washing or "wetting the skin.

"Fourthly, make a steel tincture or rusty iron and steel steeped "in white wine vinegar, and mixed with the last mentioned log"wood liquor with galls, and wet the skins once over.

"Fifthly, change or enliven and quicken this liquor with a "little fustick and copperas, and add a small quantity of verdi"grease steeped in white wine vinegar to soften the dye, and "remove the harshness occasioned by the copperas; then wash "and dry the skins, and brush them clean, using a little neats"foot oil with a woollen cloth to give a proper gloss."

[Printed, 3*d*. See Rolls Chapel Reports, 6th Report, p. 131.]

A.D. 1762, March 10.—N° 770.

HOUSEMAN, Henry.—"Method of gilding, colouring, and "marbling of paper." For marbling of paper the patentee takes of "gum tragogant three or four pounds, and of allum about half a "pound, and put them into hott water; let them stand twelve "hours, then mix them with cold water till of a thickish con"sistency; then take of coogell lack three or four pounds, made "fine and ground with water and any kind of spirits; of indigo, "about a quarter of a pound; of chalk about five pounds, mixed "together; of orange opiate about one pound; of stone oker "about one pound; of aurum pigmentum about one pound, all "made fine and ground with water; the preparation of tragagant "and allum to be put into a square trough the size of the paper. "Make the colours all thin with water and a little spirits, and "put them upon the preparation of tragagant and allum in the

" trough, with woollen mops, to which put about five spoonfulls " of gall, or any other quantity, untill the colours spread them- " selves upon the tragagant and allum. The pattern is formed " according to fancy, upon the preparation of tragagant and " allum, with a wooden pin and a wired comb drawn over the " colors; then lay on the paper and it will receive the colours; " when dry, to be glazed with a flint stone made smooth for the " purpose. For colouring paper,—viz. brown, with black spotts— " take of terra umbra and starch a pound each, mixed fine, and " lay it on the paper, according to fancy, with a brush, and dry it; " then take half a pound or a pound of lamb black, ground fine " with water; make it thin with water and spirits, with which " spott the paper with a brush, dry it, and then glaze it." For " 'yellow ground,' take equal quantities of 'yellow berries and " 'starch.' For a 'blue ground,' take indigo, chalk, and starch " to which other colours may be added. " For gilding paper, take " gold or silver leaf, the colour to be taken from Brasil wood, " rasped and boiled, indigo, lacemus, statzmeing, French beer, " French grinspan, all made fine and thinned with water and " spirits; the pattern to be engraved on copper, upon which the " collours are to be laid; and thereon lay the paper and press it " with a skrew press."

[Printed, 3*d.*]

A.D. 1763, January 21.—N° 784.

DAVY, George, the younger.—" A new method of making " orchell from rock or stone moss of the growth of Great Britain " and Ireland, which answers all the purposes of dying as orchell " made from foreign orchell weed or moss." " First, distill " chamber lye or urine, potashes, and allom in the following " manner:—To three butts of chamber lye put ten pounds of " potashes, three pounds of allom, and two bags of lime. Draw " from this as much spirit as it will yield, as some chamber lye " will yield more than others. To every hundred weight of the " moss placed in the usual 'back' put three hundred weight of " the above spirit. Mix it well together and turn it once or " twice a day according to the heat or coldness of the weather. " At the end of nine days, add 10lbs. of Spanish white; mix it " well; and the next day grind it in a mill & then return it to the " 'back;' stir it then well daily for other nine days, and then

" add ten pounds of rock salt in winter, and fifteen pounds in " summer, two pounds of rough saltpetre, and one pound of " salt almoniack. Mix it well together, and stir well every day."

[Printed, 3*d*. See Rolls Chapel Reports, 6th Report, p. 132.]

A.D. 1764, January 18.—N° 804.

BROWNE, PETER.—"A new method of painting silks and " sattens in oil colours, and of rendering them durable by pre- " serving the colours from the common injuries arising from water " or friction, which invention affords the elegance of rich brocade " to slightest lutestring." The method of compounding these ingredients in order to the above purpose:—" First dissolve half a " pound of isinglass in clean water, two quarts, in a clean skillet, " over a very gentle fire; add half an ounce virgin's wax and a " quarter of an ounce white sugar, and continue stirring till " they likewise are dissolved; strain it through a fine lawn sieve " into another clean skillet; stir in flake-white, levigated, one " pound and a half; place it again on the fire, keeping it stirred " for about ten minutes; pour it into a stone bottle and keep it " stopt close for use: this we call ursplash. In the proper appli- " cation of this compound it is necessary to have blocks, in the " forming which observe the following method:—Take a piece of " the finest felt from the hat makers and dip it into the following " mixture: compounded of isinglass, an ounce; clean water, one " pint; proof spirits, quarter of a pint. When almost dry press " it in a screw press, and when perfectly dry fasten it on a block " of ash wood of from three to twelve inches square on which the " felt must be carved and the extremities cut away. Boil the " ursplash, and while it is boiling pour it on a board covered with " fine cloth, and immediately press the carved block on it, and " it is charged; the silk is made ready to receive ursplash from " the impression of the block by being strained on a cloth table " or frame, where it must remain till it is quite dry."

[Printed, 3*d*. See Rolls Chapel Reports, 6th Report, p. 133.]

A.D. 1764, March 31.—N° 809.

CUMMINGS, GEORGE.—"A composition to put on all sorts of " skins, paper, or linen, for the use of drawing or writing on with " a pen and ink, or pencil, and rubbing clean off again, and to " form it into a memorandum book, distinguished by putting the

" name of each day of the week on the top of each leaf of the " book, and for other uses and purposes." "Take either vellum, " parchment, very fine cloth, or paper, and stretch it in a frame as " tight as possible; then take twelve pounds of white lead and " pound it very fine; then add one third part of the best plaister " of Paris and one fourth part of the best stone lime; well pound " them, mix these well together, and grind them very fine with " water, then take a new glazed vessel and dissolve six or seven " pounds of the best double size over a fire, and mix the above " ingredients in this till it is of such a consistence as to lay on " with a brush; then lay three or four layers on the skin or cloth " as smooth as possible, observing that the skin is dry each time " before a second layer is put on; then take the best nut or linseed " oyl, and to every pound of this oil add four ounces of the best " white varnish, and mix them well together; then put on three or " four layers of this oyl thus prepared, each time exposing it to " the air till it is thorough dry. This is for the white sort." Other colours may be produced by adding stone oaker, or orpiment or Dutch pink vermillion, prussian blue, ivory black, &c.

[Printed, 3*d*. See Repertory of Arts, vol. 7, p. 231.]

A.D. 1764, April 10.—N° 810.

FRYER, Thomas, GREENHOW, Thomas, and NEWBERRY, John.—"A machine of a new construction, and in mixing and " adapting colours to the use of the said machine for printing, " staining, and colouring of silks, stuffs, linens, cottons, leather, " and paper." The operation of printing, staining, or colouring is effected "by means of engraved copper cylinders on which the " colours are laid by smaller cylinders which are put in motion by " other plain cylinders, and the whole work of filling in, cleaning " off, and stamping the impressions is performed by the joynt as- " sistance of sundry springs, and the intermediums of coggs & " rings, turned by a wheel worked by a horse, water, or wind. " The colours and stains made use of are extracted from the dif- " ferent dying drugs, and fixed by the help of oyl of vitriol, aqua " fortis, aqua regia, spirits of salt, allum, cream of tartar, sal am- " monica, volatile and fixed alkalies, and quick lime, which are used " in various proportions, as the shade of the colour is required " lighter or darker."

[Printed, 3*d*.]

A.D. 1766, June 10.—N° 847.

PEELE, JOHN.—"A new method of printing images, songs, "mapps, landskips and sea pieces, by copper plates, on linen, for "handkerchiefs." This invention is to be performed in the manner following :—"First, the pattern is engraved on a copper plate, "the full extent of the whole pattern. Secondly, an engine is "provided, in some measure like a printing press, but with the "additions of various springs, &c., to conduct the plate through "the roles. Thirdly, the above engine prepared, it receives the "plate through the roles, which are governed by two artists "employed for that purpose. Fourthly, the lawn is rowled on a "role, and received from the front of the engine or press, under "the bottom role and above the plate, which roles are all set "amoving by two large wheels, fixt on each side, and turned by "two men, which compleats the printing."

[Printed, 3*d*.]

A.D. 1767, February 25.—N° 869.

LONG, THOMAS.—"A machine for the blotching, printing, intermixing, and variagating, with copper plates, purple and red, and "red and black colours, on callicos, cottons, lawns, and all other "kinds of whitstered linnens, for furniture, garments, and handkerchiefs." The drawing represents a flat press with two cylinders, the upper one being lapped with two thicknesses of fine cloth, and turned with spokes by the hand. There are two forcing pins to tighten the cylinders and make the impressions perfect. The calico or other fabric is wound on a roller, and after being printed is taken up on another roller. The plates are charged with a brush out of a trough at the end of the table, and cleaned with a lath made of lime tree.

There is no provision for "intermixing and variagating" the colours.

[Printed, 3*d*. See Rolls Chapel Reports, 6th Report, p. 135.]

A.D. 1767, December 7.—N° 886.

BERKENHOUT, JOHN.—"A method, entirely new, of dicing, "flowering, colouring, or marking playing cards, so as to render "them easily distinguishable from the white cards now used." This invention is "to be performed by printing, impressing, paint-

" ing, flowering, dicing, stamping, staining, figuring, or otherwise " marking or colouring the said cards on the back, so as to render " them in anywise different in appearance from the cards now in " use, and thereby prevent the inconveniency arising from mixing " of two packs, which are not thus distinguished from each other. " The means above recited of printing, impressing, painting, " flowering, dicing, stamping, staining, figuring, or otherwise " marking or colouring the said cards are effected and performed " in the manner and method by which the arts of painting, colouring, " staining, stamping, or printing, by hand, letter press, or " rolling press, are usually executed."

[Printed, 3*d.*]

A.D. 1768, November 25.—N° 906.

DRING, John.—" Manufacture of ink into a cake or solid body, " called by the name of cake ink." This ink is made as follows: —" Take sweet oyl, vinegar, gauls, coperas, gum arabac, and allam, " mix them well together, and pour it into tin moulds to harden " for use."

[Printed, 3*d.*]

A.D. 1770, January 25.—N° 951.

FEARNE, Charles, and GRAY, James.—" A method of dying " paper, card paper, and white leather, on the grain side, of various " colours, different in quality, superior in many respects to any " hitherto used for those purposes." " The colours for leathers " are those following, to wit, red, blue, green, black, with various " shades of each. The reds are various, and are produced by a " tincture of carmine, by a tincture of cochineal and madder, or a " tincture of cochineal hightened by a solution of tin, or, lastly, " from a decoction of Brazil and allum in malt liquor. Blue is " produced from a solution of indigo in oil of vitriol. The green " is an admixture of the blew with any yellow tincture, at pleasure. " Blacks are produced from the blue, added to a tincture of galls, " sumac, and Campeachy wood, stricken black by tincture of steel " or sal martis. The colours for papers are all the above-mentioned, " prepared in the same manner, together with yellow, " purple, or orange, brown, and their several intermediate degrees " of variation. Yellow is produced by a tincture of French berries " with saffron, as also by most of the yellow dyes now commonly "used for those purposes. Orange is produced by the admixture "of the yellow with madder. Purples are produced by the admixture of logwood with the blue tincture, or from cochineal with "sal martis or tincture of steel. Browns are obtained from "arnotto and japan earth, with galls and sal martis. With respect "to leathers the method of application is to dip them, on the grain "side, so long and so often as may be found requisite for the "depth of color desired. This is to be done in a flat pan or "vessel capable of receiving the leather extended therein with its "grain side on the liquor. When dry, they are to be washed with "spunge and soap and water, and finished by rubbing with dry "flannel, except the blacks, which are to be oiled before they are "washed.

"With respect to papers, they are to be procured from the mills "unsized, and in that state tenderly passed through the colouring "liquor, mixed with such a portion of size as the intended degree "of stiffness may require, which may be done either by the hands "or by a contrivance similar to that used in the paper mills for "sizing their paper; and is to be continued so long till the paper "shall have acquired the intended depth of colour, after which it "is to be hung upon fine horse-hair lines or on glass tubes; and "when the colour shall have become what the dyers call sett, "then it is to be passed through cold water, and be hung up to "dry, after which it is to be pressed and polished according to "the use for which it may be intended. In the above applications "the tinctures are to be used hot or cold, as may best suit the "depth of colour required."

[Printed, 1*s*. See Repertory of Arts, vol. 9, p. 387.]

A.D. 1770, April 27.—N° 956.

HOLLINGS, William, and SMITH, Enos.—"Dying wrought "and unwrought woolens, linnens, silks, and cottons, which "stand the tenters hot press, sun, wind, and rain, with a liquor "or decoction extracted and prepared by them from a red wood "which groweth in His Majesty's settlements in the West "Indies." The patentees do not give the name of the "Red "Wood" above referred to. They prepare the liquor or decoction by "chipping, rasping, or grinding a proper quantity of "the red wood, steeping or not steeping the same in water for "a day or more, and by boiling the wood for an hour or upwards, "according to the strength of the decoction wanted, alway clearing

" off the scum as the same shall arise, and using the same in " any degree of heat, according to the fastness of the colour " wanted. With this decoction may be dyed any colour or shade, " from a red to a brown or dark chocolate, by preparing the " wool, silk, or cotton, with the several materials herein-after men- " tioned, using the same in such quantities and proportions as the " colour or shade wanted may require: that is to say, for red " with a yellow cast, alum with red or white argol, cream of tar- " tar, and prepared aqua fortis; red with a blue cast, alum with " red argol, filings of iron, galls, oak sumach; the darker colours, " alum with red argol, copperas filings, galls, oak slip, indigo, " orchill, soot, or any other dye stuffs which agree with the said " preparations and decoction."

[Printed, 3*d*.]

A.D. 1771, November 6.—N° 999.

MOORE, Isaac, and PINE, William.—" Method of casting " cases in metal for holding and containing metallic letters or " printing types of a peculiar construction, to fix in the said " cases, for marking or printing on silk, muslin, linnen, woollen " leather, paper, parchment, and vellum, together with raised " letters for signs, monumental inscriptions, and other purposes; " and also new invented printing presses, the platens whereof " are made of iron and other metals, as well as of wood, and " are suspended or counteracted by a ballance or weight." The " case " referred to above for holding the types is a small oblong box with a handle fixed to the back. The types or letters are placed in the box and held tight by a screw at one end. [This instrument is still in general use for marking the ends of pieces.] The raised letters are cut out of metal, paper, pasteboard, &c., with chisels or punches, and fixed on a plain surface with cement, screws, &c., or rivets. In the new printing presses the impression is produced by the descent of a platten worked by a lever.

[Printed, 6*d*. See Rolls Chapel Reports, 6th Report, p. 161.]

A.D. 1772, March 14.—N° 1007.

ADKIN, Joseph, the elder; ADKIN, Joseph, the younger; TAYLOR, Charles; and WALKER, Thomas, the younger.— " A new machine or engine for stamping and printing of paper, " silk, woollen, cotton, and linnen cloths, and other articles made " of silk, wool, cotton, or linnen." The invention is described as follows:—“ The bottom or pedestal of the machine is formed of “ two pieces of oak each eight foot long, eight inches wide, and “ five inches deep, which are laid along and fixed into the floor of “ the room, and firmly secured at the distance of twenty inches “ from each other by two strong pieces of oak morticed into the “ ends of each; two pieces of oak each six foot high, eleven “ inches broad, three thick, are placed upright in the centre of the “ pedestal directly opposite to each other, held together by a piece “ of oak morticed into the top of each. Each upright piece has “ a spur of oak six feet long, three inches square, placed on each “ side of it, which is fixed between the top part of the upright “ and the extreme end of the pedestal to hold the parts firm to “ each other Both uprights have a groove in them which is cut “ three foot eight inches deep from the top, and is one and a “ half inches wide. In this groove run the axles of three rollers, “ which are each two feet in length, and commonly made of “ sycamore.” “ The bottom roller [which is the furnisher] is “ seven inches in diameter, the surface of it turned as even as “ possible. The lower part of this roller from the axle runs “ within a wooden box or trough, which is six inches deep, fixed “ between the uprights; this box contains the liquor for printing “ with, and is filled with it to that height that the roller may run “ about half an inch deep in the liquor. Upon the bottom “ roller is placed the middle roller, upon which the pattern is cut “ one eighth of an inch deep. This roller is commonly about “ three inches diameter; upon this is placed another roller, six “ and a half inches diameter.” The axles of these rollers are of iron, and that of the middle roller projects beyond the others to allow a handle which is fixed on it to turn the roller round freely. The rollers are pressed together by two iron levers six feet long each, on which may be hung weights of ten lbs. each. The levers & top roller may be elevated by a simple windlass which is worked by a traddle fixed to the bottom of the machine. “ When the cloth is ready for printing it is wound upon a roller “ about three inches diameter, which is then placed between “ the two spurs, a foot and a half above the three printing rollers; “ from thence the cloth passes through two rails fixed on the “ sides of the uprights on the level of the middle roller to pre- “ vent the cloth from crimping,” and finally between the printing roller & the top roller, when it receives the impression. After the cloth is thus printed it is laid in proper folds to dry.

[*Printed, 4d.* See Roll Chapel Reports, 6th Report, p. 138.]

A.D. 1772, April 7.—N° 1012.

ROWLEY, James.—“ A method of making playing cards,
“ printed from engravings on copper after entire new designs
“ in oyl colours, with a peculiar kind of ink, which will bear the
“ leesing or polish necessary to be given to playing cards, which
“ no other ink known to the printers or cardmakers is capable
“ of. The new designs typifying the four classes of people
“ into which the kingdom is devided.” “ The first, commonly
“ called spades, means the nobility and military, typified by the
“ figure of an espontoon; second, the clergy (hearts) by the
“ chalice or communion cup; third, the citizens and merchants
“ by the diamond; and fourth (clubbs) by the trefoil or clover
“ grass, symbolical of the husbandmen and peasants.” “ The ink
“ with which these cards are printed from metal plates is com-
“ pounded of the same ingredients used in painting the common
“ cards, known to every manufacturer, but instead of water the
“ patentee mixes them in linseed oyl and allum, boiled and cal-
“ cined to a proper crisis, which can only be ascertained by
“ frequent experiments.”

[Printed, 3*d*. See Rolls Chapel Reports, 6th Report, p. 138.]

A.D. 1773, March 2.—N° 1033.

WELDON, Patrick.—“ New invented method of bleaching and
“ whitening linnen and yarn by a composition entirely new,
“ whereby they will be bleached and whitened better, cheaper, and
“ in less than half the time at present imployed in bleaching and
“ whitening them.” “ Take of the best kelp one hundred weight;
“ barella ashes eighty-four pounds; America pottashes half a hun-
“ dred weight, to be ground together in a proper mill; fern ashes,
“ or in England tobacco ashes, half a hundred weight; of the
“ testacius shells, calcined, fourteen pounds; quicklime, one hun-
“ dred weight: to be made into paste with cow dung, then to be
“ rolled into balls; to be dryed in the sun or by a gentle heat;
“ when almost dry to moisten it with oil of tartar per campanum,
“ and when perfectly dry to break into pieces as big as nuts: to
“ be steeped and made into lees with soft pond water according to
“ the art of bleaching.” This composition is used first “ and is
“ sufficient for one hundred double pieces of brown linen, con-
“ taining fifty yards each, to be finished in twenty-five days with-
“ out watering.” The goods are afterwards to be treated with

similar compositions but in varied proportions, to which the "mucillage of gum sennecca" may be added. In boiling in these lees half a pound of "blue tallow" or "blue suett" may be added. The "blue tallow and suett" are prepared from kelp, quicklime, salt, and tallow or suett, with fine pale smalt and oil of vitriol. "The bucking house to be made in a particular manner, to be "vaulted and made waterproof with pirate or firestone."

[Printed, 3*d.*]

A.D. 1773, March 19.—N° 1036.

HEYS, John.—"A method of making lees and ashes from marl "and other materials for bleaching of cloth and yarn, and for the "use of soapers, dyers, and others." "I take a quantity of "marl and burn it in a kiln much like those used for burning of "lime, only I place iron bars about a yard from the bottom that "it may receive air during the time it is so burning. I then take "the ashes arising therefrom, and, with kelp, salt water, fresh "water, turf ashes, soot, lime, oyster shells, and fuller's earth, "put the whole into a cistern, where I let them stand four or five "days, from whence I draw or take a liquid or lee, which I afterwards boil till it will bear an egg, and then, putting in some "lime water and aquafortis, put the whole into a reverberating "furnace cased with iron, to prevent the matter from running "out, as it requires an excessive hot fire to melt it down, and "when it is so melted I draw it off into an iron pan, and upon "growing cool it becomes hard, fit for use."

[Printed, 3*d.* See Rolls Chapel Reports, 6th Report, p. 139.]

A.D. 1773, June 24.—N° 1045.

PRESTON, Thomas.—"A method of printing all sorts of "colours, compleat and fixed on the first impression, upon all "kinds of silks and sattins, and woollen and cotton mixed with "silk, upon all kinds of woollen goods, upon silk velvets, cotton "velvets, and cotton velverets, without the tedious process of "boiling and bleaching." This invention is for the topical printing of pigments. "The usual wood blocks or cylinders made of "wood or metal are employed. The colours used are made of "lacore and glair of Nicoga, shell fish, zest of skuttle fish, and "skuttle fish bones, mineral, vegetable, and animal oils, separated

" and prepared with camphine and blood mixed with the essence " of logwood, galls, and cohan, essence of madder, cochineal, and " Brazil essence of fustick, woald, and yellow berries, indigo, " cyanus lacmus, prussian blue, and colour extracted from lapis " lazuli."

[Printed, 3*d.*]

A.D. 1774, January 18.—N° 1060.

JOHNSTON, THOMAS.—" A durable preparation for staining " horses and other animals, by means whereof horses of the most " different colours may be made to match exactly, &c."

This invention is introduced here because it contains the earliest information as to the use of nitric acid for staining wool and hair. After the acid has been applied with a brush of camel's hair or cane to the animal the inventor uses solutions of gold, silver, or copper to form shades to the "liking of the stainer."

[Printed, 3*d.*]

A.D. 1774, February 23.—N° 1066.

ECKHARDT, ANTHONY GEORGE.—" A method of printing in " designs on all manner of silks, cottons, muslins, callicoes, and " papers."

Neither the description nor the drawings are very clear. There is an alphabet of types or primitive forms of patterns such as are used by block cutters, which are to be mounted in a frame, and employed in the manner generally practised with the common letter press. There are also various improvements on the press itself. The above frame or block is made to work on hinges, and to traverse along the printing table; the weight of the block is counterpoised by a lever & weight. The sieve is made to traverse also. The surface to print on is an endless blanket (if it may be so termed) of flat boards, or leaves of wood, jointed together as a chain, by hinges fastened to the under part of each; this is caused to revolve, as the cloth is printed, by an hexagonal roller at each end of the table.

[Printed, 1*s.*]

A.D. 1774, June 27.—N° 1074.

SHEPLEY, GEORGE.—" Grinding or reducing to powder bark " for tanning leather, and Brazil wood logwood, fustick, madder,

" indigo, saltpetre, and all other woods, drugs, roots, minerals, " and colours used in dying, by certain millstones of a particular " form and construction, placed horizontally, and worked with " wind or water. The upper stone is to be cut into a concavity, " beginning about a foot, more or less, according to the size of " the stone from the edge or skirt, and approaching to the centre " thereof; the lower or bed stone is to be flat, and to be steadily " fixed. There is to be a needle or spindle of iron run through " both stones, in the same manner as through common millstones; " but the wooden box placed in the centre of the lower or bed-" stone, and through which the said spindle passes, is to be raised " or made a little convex. There are placed upright in the said " wooden box, so fixed in the lower or bed stone, several flat " pieces of iron or other metal, shaped like knives, which, by the " circular motion of the upper stone, will direct the bark or other " substance to be ground from the concave parts of the upper " millstone to the sides or edges of the said stones, where the same " are to be ground and reduced to powder."

"The bark or other substance to be ground by these stones are " to pass through a hopper, fixed, as common hoppers for grinding " corn are, into the concavity of the upper millstone, but the " hopper and eye of the said upper stone are to be made much " larger than in common millstones for grinding corn. The " laying in of the work differs from the work in millstones used " for grinding corn, in the following particulars:—That the bands " used in this invention are round instead of being flat, and the " furrows wider and deeper, but that must be in some degree " varied according to the nature of the substance intended to be " ground, which a little experience will teach any person ac-" quainted with grinding with millstones."

[Printed, 3*d*. See Rolls Chapel Reports, 6th Report, p. 162.]

A.D. 1775, October 23.—N° 1103.

BANCROFT, EDWARD.—"Discovery and invention that certain " vegetables, growing spontaneously in His Majesty's American " dominions, and never, as I believe, used for any art, trade, or " manufacture within Great Britain, except by myself and those " employed by me, are capable of dying, staining, printing, paint-" ing, or otherwise communicating certain valuable colours in, " upon, or to wool, hair, fur, silk, hemp, cotton, linen, skins,

" leather, paper, and wood." There are three substances included under the term "vegetables" in this Specification. "First, the " bark, fruit, and excresscences of that species (with its several " varieties) of oak growing in North America," known by the names of "yellow oak," and "black oak;" this species of oak may be distinguished from all others by its giving with alum a fine yellow colour, and not striking a black upon the addition of iron. "The bark of this species of oak, by the help of alum, " or of alum & salt of lead, applied either to the substance to " be coloured or to the infusion of the bark itself, will give a " lasting yellow colour to the several substances above enume- " rated; or, if a blue colour be previously given to these substan- " ces the stringent particles of this bark will render them green, " by the help of alum, or of alum and salt of lead." "The same " bark infused in water and saddened by the addition of the " preparations of iron and copper, will communicate a variety of " browns, dark olive, and other colours." "Secondly, the " bark and fruit of the 'American hiccory or walnut tree,' which, " by the help of allom, or of allom and verdigris, or of allom and " salt of lead communicates a yellow or a green colour to the " substances particularly mentioned in this patent." Thirdly, the bark of a tree growing in America and West Indies, "com- " monly called the 'red mangrove tree.'" "The bark of this tree " infused in water by the addition of alum or other acid salts, or " by the addition of alkaline or of neutral salts, or by the addition " of different preparations of iron, or copper, or lead, will com- " municate to the different substances aforesaid a very great " variety of redish, redish brown, brick, light brown, dark brown, " and nankeen colours, with many other diversities of colour."

[Printed, 3*d*. See Repertory of Arts, vol. 4, p. 73.]

A.D. 1776, November 19.—N° 1137.

HAWKINS, HENRY.—"Working an aquarella ground, to be " used on copper plates engraved for printing of linnen, cottons, " &c., which produces various tints of a new construction." The ground of the copper plate is to be worked with tools called " punches," made of the best steel, about the thickness of a goose-quill; the face of the punch when soft is to be filed to the size and shape required, and cut with lines, some fine, others coarse, according to the work intended. The tools thus prepared are to be hardened and worked with a hammer about four ounces weight. The barbs raised by the working are removed by a fine polishing stone.

[Printed, 3*d*. See Rolls Chapel Reports, 6th Report, p. 140.]

A.D. 1777, January 23.—N° 1145.

MIKOVINIJ, ANTHONY.—" A certain new composition for " the manufacturing, improving, dressing, and bleaching hemp, " flax, and other vegetable substances, and hempen and other " cloth and yarn." " The composition consists of tartar, saltpetre, " and pearl or any other ashes, or any other alkaline, tartarous, or " nitrous substances in equal quantities. These are to be fluxed, " and after fluxion are to be dissolved in water, to which water is " to be added as much soap in quantities as of the other ingre- " dients together. The hemp, flax, cloth, or other substance is to " be boiled or steeped in the water in which the aforesaid ingre- " dients have been so dissolved, and then dressed in the usual " manner."

[Printed, 3*d*. See Rolls Chapel Reports, 6th Report, p. 163.]

A.D. 1777, December 31.—N° 1175.

DOLIGNON, STEPHEN.—"New method of weaving and cutting " the warp, shute, or brocade floating silk on the right side or " face of velvet, shag, satin cord, tabby chain, lustring, or mix- " tures of either of them, plain, flowered, or spotted with flush, " tissue, tobine, or brocade, with silk, gold, or silver, and silk " mixed with cotton, thread, or worsted, so as to form the design, " pattern, figure, or stripe, and of staining, printing, or colouring " the whole or part of the surface of plain, striped, or flowered " silk or cotton velvet, long or short piled shag or plush."

The first part of this invention relates to the weaving and cutting of the above fabrics. The second part consists in staining, printing, or colouring the whole or part of the surface of the above fabrics, " by applying, stamping, or rubbing the surface of " either of them with a brush, cushion, spunge, or other soft " and poreous substance imbibed with or soaked in such liquid, " so as to produce the colour intended." The Patentee says,— " I compose such liquids by dilutions or decoctions of Saxon " blue, orchilla, logwood, cochineal, arnnatto, fustick, gall-nuts, " copperas, allum, aquafortis, and such other ingredients as are " used by dyers, mixed together or used separately according to " the colour required."

[Printed, 3*d*. See Rolls Chapel Reports, 6th Report, p. 163.]

A.D. 1778, November 9.—N° 1201.

JOHNSON, Henry.—" Method of printing with types of figures " so connected as to prevent the possibility of error in all business " where figures are used, particularly in taking down the numbers " of blanks and prizes in the lottery." This is performed by means of types of figures cast in a body, so as at one impression to form any number or numbers, figure or figures, without being liable to the usual errors of misplacing, inverting, or substituting one figure or figures for any other; which said types may be made of iron, lead, brass, copper, or any other metal; or said types may be cut in wood, metal, stone, or cement, or any other composition fit for the purpose of making the impression of figures in a body as aforesaid; and when the said types or figures are used they are placed in a frame made of wood or any other substance, and placed in a common printing press.

[Printed, 3*d*.]

A.D. 1780, June 27.—N° 1260.

FLIGHT, Joseph.—" A method of making a colour for dyers " and calico printers." " Let iron or steel be steeped in water " drawn from tar or tar oyl, and let the liquor be mixed with " flour, starch, or gum of any kind, and made sufficiently thick " for working on wooden prints or copper plates, such as are used " by calico printers, which will make it useful in making black, " purple, or other colours in the printing business."

[Printed, 3*d*. See Rolls Chapel Reports, 6th Report, p. 141.]

A.D. 1780, December 5.—N° 1269.

ROGERSON, Roger.—" An entire new machine called a " laundry, for the purpose of washing and pressing of all sorts of " household linen, wearing apparel, and other things, in a much " less expensive and laborious, and more expeditious manner " than any hitherto practised." This machine " has a frame of " wood or metal, in which is a trough or cistern composed of " straight or inclined sides, and curved ends, with two or more " levers or futts hanging on centers or axes. When the machine " is putt in motion, the bottom part of the levers or futts move " in a curved direction in one curved part of the trough or cistern, " pressing alternately the linen or other things in washing against " the other curved part of the trough or cistern. The levers are

" put in motion by moving a winch wheel or lever by the hand, " or any other power. In the machine over the trough or cistern " is fixed two hooks, over which wet linen is hung, and by giving " a circular motion to one of the hooks, presses the water out of " the linen and other things in a more compleat manner than " when wrung by the hand. In one side of the machine is a " plain which moves in a right-line direction, over which hangs a " frame that moves on its centers, which gathers and presses the " sleeves of a shirt and other household linen, or other things, in " as regular manner as if pleeted by hand, after which the linen " and other things is passed through a pair of rowlers, which " presses and finishes both the plain and pleeted part of the linen " and other things in a more perfect manner than when ironed " by hand."

[Printed, 3*d.*]

A.D. 1781, January 24.—N° 1277.

ANGELL, Albert.—" Britannick elastick gum, very serviceable " and useful in the several branches of portrait and house painting, " by making the colours durable and free from peeling; also of " great utility in guilding, painting, pencilling, and staining of " silks, calicoes, &c., and in dressing of silks, linen, and cotton in " the loom, instead of gum or paste, so as to strengthen the " threads of the finest cottons; and is also excellent for beautifying and fixing the colours upon paper, equal to that done " in India; and is of the greatest use for the rendering the clay " or composition used in modelling supple, and preventing the " same from drying too fast, and for causing a transparency of " colours fit for china and earthenware, so as to stand baking or " burning." This elastic gum is compounded of " linseed oil or " nut oyl one gallon, bees' wax, yellow or bletch't, one pound, glue " or size six pounds, verdegrease a quarter of a pound, letteridge " a quarter of a pound, spring or rain water two quarts; to be put " into an iron kettle and melted down till it comes to the composition."

[Printed, 3*d.* See Repertory of Arts, vol. 3, p. 381.]

A.D. 1781, April 24.—N° 1289.

ROBERTS, William.—" A method of cutting and preparing " prints or moulds of whole and compleat objects and designs, " called arabesque, to the extent of from three feet seven inches

" (the largest hitherto made) to ten feet and upwards in length,
" and from two feet and a half to three and four feet wide, or
" more where occasion shall require, and of using and applying
" such prints or moulds in printing, painting, or staining of
" paper, linnen, woollen, cotton, or silk, or any manufacture
" made of the said articles, either entire or mixed, in various
" designs and colours, wherewith such paper or other furniture
" may be done and laid on rooms or apartments of any dimen-
" sions, in intire and compleat impressions, without mutilation or
" addition."

This invention " consists in drawing and preparing patterns,
" subjects, and designs of the magnitude in the said Letters Patent
" particularly mentioned," and in cutting and preparing " prints
" or moulds suited to such subjects and designs, so as to give
" entire and compleat impressions thereof, of the dimensions
" aforesaid, without repetition or addition." The invention also
extends to the mode of using or applying the said arabesque
prints or moulds, which must (in consequence of their magnitude)
" be laid on the back, and, being furnished with blacking, the
" prints may be either laid upon the cloth, paper, silk, or cotton,
" and impressed in a rolling press, or with a leaver, or beaten with
" a maul, and afterwards painted, either with hand, or with
" stansills or grounds, according to the usual practice; or the
" paper, cloath, silk, or cotton intended to be printed or stained
" may be laid on the arabesque prints or moulds, and impressed
" thereon or rubbed with a pad or such like thing made of cloath
" list."

[Printed, 3*d*.]

A.D. 1781, July 27.—N° 1299.

PELTRAN, John, and TAYLOR, William.—" Invention of
" tying the spots of silk handkerchiefs in the imitation of India
" handkerchiefs," which is effected in the following manner:—
" While the silk is white prepare it to receive the dye with allum,
" sugar of lead, or spirits, killed with tin. Then make use of a
" print, which is to be used as a guide to the tyers as to the dis-
" tances of the spots; then pinch up with the nails such a piece
" thereof, according to the size of the spot you intend to make;
" then fold it three or four times in a triangle, and with thread,
" silk, worsted, mohair, small twine, horse hair, or cotton, tye at
" about half a quarter of an inch from the top of the fold or

" further, according to the size of the spot intended to be made," by twisting the thread three or four times round, and tying the same in one or more knots, " by which means, when the hand- " kerchief is dyed, the part so tyed is preserved from the dye and " remains a white spot, except in the center, which receives the " dye and remains a spot in the centre of the white spot." A tint is produced in the corner, or obliquely across the white spot, to imitate India handkerchiefs, by impregnating the thread, with which the spot is tied, with madder, cochineal, or other dye stuffs; " and, when the handkerchief is in the dye, the heat of the dye " moistens the dye of the thread" and colours the silk.

[Printed, 3*d*. See Rolls Chapel Reports, 6th Report, p. 165.]

A.D. 1782, January 1.—N° 1312.

GOLDING, Robert.—" A new method of dying, staining, and " colouring beaver and beaver hats, commonly called felt or beaver, " or stuff hats, green or any other colour underneath or on one " side only, preserving the natural colour on the other side. " First, the nap of the hat on the side intended to be dyed is to " be raised with a cord, then boiled in alum and argle, and after- " wards a thin paste made of flour or clay spread with a painter's " brush over every part of the hat not intended to be dyed, then " closed; or they may be pasted first, and then, instead of being " boiled, must be only simmered in the same liquor. As soon as " the paste in either case is spread, plates of copper, or any other " metal, on thin boards, nearly of a triangular form, on an instru- " ment of the same materials shaped like a common funnell, are " fixed over and upon the paste to prevent the dye coming through, " and sometimes pasted and closed together without plates or " boards. Then a small plate with the initials of the dyer's name " is fixed or fastened to that part of the hat intended for the " inside crown, which admits such initals being dyed therein at the " time the hat is dyed. In this state the hat is put into the dying " liquor boiling or almost boiling, and remains there till the colour " proposed is sufficiently fixed. It is afterwards taken out, opened " and cleansed from the paste, and if any spots have got through " they are removed by being washed with a small mop of linen " rags dipped in a strong alkali infused in hot water; but as a " yellow spot or iron mould will remain, such spots are removed " by washing them by a small quantity of spirits of salts, aqua

" fortis, or vitriol infused in cold water, and run out with a piece
" of board or stamper made for the purpose of making the hats
" clean from the filth and water after having been dyed and
" washed as aforesaid. The compounds made use of in dying are
" furstic, tameric, ebony, would, safflower, sachrum, alum, argle, in-
" digo, and vitriol, with chamber ly or pearlash, at the option of the
" dyer; sometimes all used together, sometimes otherwise, accord-
" ing to the intention of the dyer, according to the colour required."

[Printed, 3*d*. See Repertory of Arts, vol. 5, p. 98.]

A.D. 1782, July 4.—N° 1331.

SIDGIER, Henry.—" A machine for washing all kinds of " wearing apparel, lace, linen, and every other thing which re- " quires washing, in an entire new and expeditious manner." There is no specification attached to this invention. The drawing shews an apparatus consisting of a tub or vessel, in which the water or liquor is placed. An open ribbed cylindrical reel is placed in the tub, for the purpose of holding the material to be washed. This cylindrical reel is caused to revolve in the tub by means of cog wheels, and thereby washes the articles which it contains.

[Printed, 5*d*.]

A.D. 1782, November 16.—N° 1343.

HARPUR, Thomas.—" A machine for watering yarn or cloth on " whitstering grounds, crofts, or callico printing grounds." This invention of a machine " consists of its wheels and carriage, its
" cask or reservoir for containing water, valves to retain or let the
" water out at pleasure, pipes to convey the water from the reser-
" voir to the pumptree, and from the pumptree into the tubes or
" pipes, with holes in 'em for spreading the water over the yarn
" or cloth, and the various small appendages for supporting the
" pipes or tubes, and making the machine compleat. This ma-
" chine is to be drawn by a horse or otherwise. The tubes pro-
" ject a considerable distance, about fifteen or eighteen feet from
" the pumptree on each side, the horse with the carriage moves
" along a road, on each side of which cloth or yarn is laid. Over
" this cloth or yarn the tubes project, and when the horse is set
" agoing the cask or vessel, being previously filled with clear
" water, the valves are then raised, and the water descends upon
" the cloth or yarn."

[Printed, 6*d*. See Rolls Chapel Reports, 6th Report, p. 167.]

A.D. 1782, November 16.—Nº 1344.

BOOTHMAN, William.—"Method of making iron liquor, or " the preparation commonly called or known by that name." This is performed in the manner following :—" I take a quantity " of iron filings, hooks, or other thin iron, or any other kind or " preparation thereof that is generally made use of for making iron " liquor. After it is put into a cask or other vessel I put on it as " much fresh water (in each gallon of which I previously mix one " pound of wheat flour), as will cover the iron. If this liquor be " drawn off and again put on the iron once in three or four " weeks, or well agitated, it will sooner come to perfection. This " iron liquor may be made from wheat, wheat flower, or bran, bar- " ley or barley flower, malted or unmalted, oats or oatmeal, rye " or rye meal or flower, or any vegetable, grain, or substance that " will produce an acid when mix'd with water. It is not neces- " sary to let the flour and water stand together, so as to make an " acid before they are put upon the iron, tho' that way will " answer, but it will do equally well if put on the iron as soon as " mixed, and if the water is warm it will be better. If a larger " proportion of flour is used it will make the liquor stronger."

[Printed, 3*d*. See Rolls Chapel Reports, 6th Report, p. 166.]

A.D. 1783, July 17.—Nº 1378.

BELL, Thomas.—" A new and peculiar art or method of printing " with one colour, or with various colours at the same time, on " linnens, lawns, callicoes, woollen cloth, silks, &c." This Specification contains a description of a six coloured cylinder printing machine. The six rollers are arranged round a large central bowl, but placed over the bowl, instead of under it, as now practised. The chief interest in this invention consists in the introduction of the steel doctor. The colour is supplied to each roller by what is still called the " box doctor." There are springs and screws to push the box doctors up to the rollers; also screws to press the rollers to the bowl, and brass steps to carry them, and there are toothed wheels to drive the rollers simultaneously. There is also a winding on frame, by which the unwinding of the cloth from one roll, before printing, winds the printed cloth on another, with a coupling box to detach the roll when filled.

[Printed, 2*s*. 3*d*. See Rolls Chapel Reports, 6th Report, p. 142.]

A.D. 1784, April 21.—N° 1429.

HIGTON, Paul.—“ A new and peculiar art or method of clarifying
“ or separating the oil, gaul, or dirt, from the lees of potash,
“ pearlash, barilla, kelp, or any other vegetable, caustic, or fossil
“ alkali, whether fixed or volatile, after they have been used in
“ bleaching, bucking, or boiling of cloth, yarn, or goods, manufactured
“ or unmanufactured, so as to render the same again
“ usefull for bleaching or other purposes.” “ I take a quantity of
“ lees that have been used in bucking, boiling, or bleaching cloth,
“ yarn, flax, hemp, or other matters or goods, to which I add a
“ quantity of bleachers' or soap-boilers' waste ashes, sufficient
“ to break or curdle such lees, when well stirred together. I let
“ it stand in this state to settle and clear; I then draw off, decant,
“ or pour such lees into another vessel, and, to complete the precipitation,
“ I add a small quantity of fresh lees, chalk, or whiting.
“ I stir them well together, and then filter them in the following
“ manner, that is to say, I take a tub, vat, recepticle, or other vessel,
“ with a hole or holes in or near the bottom, in which I place a
“ frame or other matter, made of wood or other materials, at a
“ small distance from the bottom, over which I put a quantity of
“ straw, hay, or other loose substance of any kind that will admit
“ the lees to pass freely through it, over which I put a quantity
“ of spent or unspent fern, wood, or other ashes, sand, gravel, or
“ chalk, on which I pour the lees, which filter themselves through
“ the ashes, sand, &c., and descend through the hole or holes in
“ or near the bottom, into another vessel; and if the lees are not
“ perfectly clear, I repeat the operation until they are perfectly
“ clarified and again fit for use. I can also break, curdle, precipitate,
“ & clarify the spent lees by the above operations, not
“ only with bleachers' and boilers' spent and waste ashes, but by
“ all kinds of fixed, volatile, or caustic alkali or alkaline substances,
“ by calcarious earths or stones, either crude or burnt, be the
“ same produced from animal, vegetable, mineral, or aqueous
“ substances, be they slacked, washed, spent, or unspent, or by
“ any other thing or things appertaining to or of the nature of
“ any of the aforesaid substances. The lees may not only be
“ filtered through sand, ashes, straw, or hay, but through stout
“ cloth, or any other loose substance that will admit the lees to
“ pass freely through it.”

[Printed, 3*d*.]

A.D. 1784, April 29.—N° 1433.

SLATER, John.—"A new machine for printing one, two, three, "or more colours, on cottons, calicoes, muslins, linens, silks, stuffs, "woollen cloth, &c." The drawing exhibits a four colour surface printing machine. The rollers are placed, as was usual at that time, over the bowl. The chief novelty in this machine consists in covering the bowl with a piece of woollen cloth, against which the printing rollers run, and are pressed to it by weights hung on their centres. The furnishing rollers are also covered, first with woollen cloth, then with oil cloth, and lastly with woollen cloth of a finer quality. The colour is supplied to these furnishers by brushes or troughs. It is stated that motion is easiest given to the machine by pulling at the printed cloth by means of friction rollers.

[Printed, 9*d*. See Rolls Chapel Reports, 6th Report, p. 143.]

A.D. 1784, July 9.—N° 1443.

BELL, Thomas, the Elder.—"Method of printing one, two, three, "four, five, or more colours, all at one and the same time upon "linnens, cottons, calicoes, muslins, woollen cloths, silks, stuffs, "or any other species of goods or articles capable of being "printed."

The drawing exhibits a three colour cylinder printing machine, which does not appear to contain much novelty. It is merely a representation of a smaller machine than that described at N° 1378. The doctor-box is again given; a scrimp rail is introduced. The centres of the printing rollers are made of iron and covered with copper or other metal, which can be taken off at pleasure, and by that means fresh patterns put on as often as required.

[Printed, 9*d*. See Rolls Chapel Reports, 6th Report, p. 143.]

A.D. 1786, March 18.—N° 1540.

BUNNETT, Jacob.—"A machine for printing of paper hang- "ings, callicoes, cottons, and linens in general, whereby any "number of colours may be printed thereon at one and the same "time; and whereby ten times as many pieces may be printed in "as short a space of time as one piece is now printed by the "common method."

This is a three colour surface printing machine, with three bowls mounted horizontally; over each bowl are placed perpendicularly a printing roller, a furnishing roller, and a colour trough. These are kept tight together by double wedges placed under the centres of the bowls. The colour troughs are "bottomed with wire, " or canvass, or any other material most convenient, and must be " of different textures according to the state of the atmosphere," to ensure the required escape of colour. There are six small rollers placed behind the machine to act as scrimp rollers. All the bowls, rollers, and furnishers, are driven together by intermediate wheels. There is also a drawing of a machine for padding paper on one side. A roller, covered with cloth, runs in a trough of colour; another roller presses upon it, and between these rollers the paper is conducted. The paper so coloured then passes over a third roller, and is there brushed on the coloured side by a brush which smooths the colour. The brush nay be worked by hand, or by the machine itself.

[Printed, 9*d*. See Rolls Chapel Reports, 6th Report, p. 174.]

A.D. 1786, October 10.—N° 1562.

SIMPSON, Thomas.—"A certain composition called British " smalts or powder blue." "Take any given quantity of foreign " smalts, to which add the same weight of prussian blue in such " a state of dryness during the manufacture of it as will make it " unite, and give a colouring to the smalts. Let these two sub- " stances be intimately mixed, after which the compound must " be dried, finely grinded, and dressed into a powder. This con- " stitutes the fabrick of this blue for bleaching and washing fine " linens. For the purpose of bleaching and washing coarser " linens, take Paris white (which is composed of chalk finely levi- " gated) with or without a proportion of foreign smalts. Mix " the same in different proportions with prussian blue as before " described and directed, after which let the mixture be dried, " levigated, and dressed into the finest powder."

[Printed, 3*d*. See Rolls Chapel Reports, 6th Report, p. 175.]

A.D. 1786, December 9.—N° 1575.

HENRY, Solomon.—"Instrument to stamp or mark with, " which may be composed of various colours, so as not to be " counterfeited or forged, for the better securing the property of " His Majesty's subjects from imposition." The instrument first described consists of a block divided into several parts, which, when separately supplied with colour, and the parts brought together again, will form one block, and will then print as many colours as there were parts. The parts may be held together by an enclosing ring, or a frame; or they may be made to slide into, or fit into, or enclose each other, as a larger circle may enclose a lesser one. The holder may be made of bars, which will separate from each other by means of springs, to admit of each part being separately supplied with colour. Letters and figures may be substituted for the parts of the design, and changed at pleasure, whereby bank notes and other documents may be stamped. Such parts of designs or stamps may be made of "gold, silver, copper," or other metal, or of "wood, ivory, horn, bone, stone, porcelain, wax, clay, " leather, papa mache," or other sufficiently hard substance. The Patentee also shews and describes an instrument or stamp with " pins or points," on its surface, whereby paper or other surfaces may be perforated in any required figure or design.

[Printed, 9*d*.]

A.D. 1787, May 19.—N° 1605.

TODD, Thomas.—"A machine for the washing and ironing of " linen." "This invention is performed by means of compressing " the linen or other cloth between the surfaces of wood, or any " other materiel, in such a manner that the cloth is alternately " compressed by the surfaces, and swelled by the fluid in which it " swims, or is immersed." The apparatus, as shewn in the drawing, consists of a vessel to contain the water or liquor, and the material to be washed. A board, perforated with holes is caused to work backwards and forwards in this vessel, by means of levers, thereby agitating and compressing the cloth against the sides of the vessel at each stroke.

[Printed, 8*d*. See Rolls Chapel Reports, 6th Report, p. 176.]

A.D. 1787, November 22.—N° 1629.

WATTS, Nathaniel.—"A new method of dying in boiling liq^{rs} " woolen cloths, or such articles as are composed chiefly of " woolen in various devices, representing foliages, scrolls, lines, &c. " in pieces of sufficient size to make the front of a waistcoat or " vest from eight to sixteen nails long, and from five to ten broad, " which is effected by means of certain frames and moulds, made " of hard metals." The piece of cloth to be printed is tightly screwed between two metal plates, held in a frame. On one of the plates the pattern is engraved, and in the other holes are cut to admit the liquors into the cavities of the engraving. The whole apparatus is then plunged into the boiling dye liquor, and kept immersed for four minutes.

[Printed, 5*d*. See Rolls Chapel Reports, 6th Report, p. 178.]

A.D. 1788, May 23.—N° 1651.

FULTON, William.—" A new method or art of using and " working pumps, as well on board of ships as on land, rubbing " boards used in bleaching and all other mechanical machines or " engines of similar natures or constructions by means of a cylin- " der with its appurt̃s." This invention consists, first, of an apparatus for working pumps. The pumps are actuated by a lever, on one end of which is a pin or roller working into an oblique groove cut on the face or surface of a cylinder. The lever is thus, by the revolution of the cylinder, caused to move backwards and forwards, like the handle of a pump. Secondly, in the application of a similar lever, acting in the groove of a similar cylinder, for the purpose of working bleachers' rubbing boards to and fro.

[Printed, 7*d*. See Repertory of Arts, vol. 3, p. 220; Rolls Chapel Reports, 6th Report, p. 179.]

A.D. 1788, June 11.—N° 1653.

BLAIKIE, Frances.—" An ingredient to be used as a substitute " for gum in thickening of colours for printing, which will answer " all the purposes of that article at a much more reasonable rate." This substitute for gum " is prepared by boiling any quantity of " flax seed in a sufficient quantity of water, until the whole sub- " stance be extracted thereby, and strained through a linen or " woollen cloth. Again boil down the liquor to the consistence of " a jelly, put it into a close vessel, and for preservation put it in a " little strong spirits, or pour a little sweet oil on the top of it: " bitters may also be used to preserve it."

[Printed, 3*d*. See Repertory of Arts, vol. 3, p. 73; Rolls Chapel Reports, 6th Report, p. 179.]

A.D. 1789, March 25.—N° 1678.

BONEUIL, Anthony Bourboulon de.—"Apparatus and pro- " cesses for the purpose of practising in a manner entirely new a

" chymical mode of whitening every vegetable substance, such as " hemp, flax, cotton, wax, and other articles and goods manufactured of the same, in so very expeditious and extensive a " manner as to be of the greatest utility and advantage to those " trades and manufactories who deal in or use the above articles, " and unaccompanied by the inconveniences which have attended " other methods and processes heretofore made use of." This invention consists, first, in an apparatus made of glass or other suitable material for the purpose of manufacturing chlorine gas from marine acid mixed with manganese, and for collecting and condensing the gas in water. The gas is generated in a retort and allowed to bubble up into a long-necked inverted matrass full of water; as the water becomes saturated the gas depresses it and causes it to flow out of the matrass and into a receiver. Secondly, in the mode of bleaching by means of chlorine gas. The gas is distilled as before and passed into a "lodge," in which the goods to be whitened are hung. "The gas going with the " elastic air from the retorts or bottles into the lodge applies incessantly to the phlogiston of the enclosed goods, and leaves " them whitened."

[Printed, 10*d*. See Repertory of Arts, vol. 4, p. 155.]

A.D. 1789, December 12.—Nº 1717.

COATES, George.—"A machine for washing, scouring, or " cleaning linen, cotton, and woollen cloths, or any other woven " or knit fabrick." The patentee describes, first, an apparatus for washing, consisting of a tub or vessel in which are worked up and down by means of a rod and handle or wheel and cranks, a series of washers shaped like "bended levers," which act by compression and agitation on the material to be washed, scoured, &c., contained in the tub. Secondly, an apparatus "for the purpose of wringing " the cloths or other materials." "A wrapper netting or wringing " cloth to receive the cloths or other materials" "is fastened at " one end of the trough to a fixed loop or loophole made through " the end of the trough and at the other end to a loop or loophole " made through a moveable block or spindle on the axis whereon " the winch or windlass is fixed." By turning the winch the wringing cloth containing the material operated on is twisted and compressed and the water or other liquor thereby expressed.

[Printed, 9*d*. See Rolls Chapel Reports, 6th Report, p. 181.]

A.D. 1790, February 23.—N° 1728.

DESORMEAUX, James Lewis.—" A certain method of pre-" venting wringing and crushing of unwrought silk in the process " of dyeing."

This invention consists, first, in the introduction of " squeezers " for pressing water out of pieces of cloth. The apparatus consists of an upright frame, made of four stout pieces of timber, " put " together by braces with tenons and mortice, or screw bolts and " nuts." " Two brays (strong pieces of wood) are made fast in " the frame, with tenon or mortice, or screw bolts and nuts, or " moving up and down in mortices in the frame," for the purpose of carrying the centers of the under squeezer bowl, which may be a " roller of different diameters made of wood, iron, or other " metal, with its axis revolving in steps or collars made of wood, " iron, or other metal." Two other brays, which may be also fast on the main framing, or be capable of moving up and down in mortices, carry the centres of the upper squeezer bowl, which may also be made of iron, wood, &c. A lever, weighted at one end and attached to the framing at the other, conveys the necessary pressure to the squeezer bowls, by means of iron or wood rods placed between the lever and the upper brays. The fabric to be squeezed is caused to pass through between the rollers when pressed together. Motion may be communicated to the bottom bowl only, which will by friction turn the upper one, by means of a wheel actuated by " water, wind, horse, or other power."

Second, to a machine apparently also for squeezing silk. It consists of a strong box, in which are placed various sized and shaped wedges, between which are placed the bags of silk to be acted upon. Certain of the wedges are worked by stampers or pressers, and act by compressing the bags, thereby expressing the liquid from the silk. The bags may be made of hair, cloth, or other material. The stampers are elevated by means of a roller with two cogs acting on noggs attached to the stampers.

[Printed, 6*d*.]

A.D. 1790, April 21.—N° 1744.

WOOD, James.—" Machines for washing and wringing of " linnen, woollen, wool, cotton, silk, or any other commodity that " requires washing, cleansing, or scouring." The machine consists generally of a tub or vessel with a curved bottom, which contains the soap suds and the cloth to be cleansed. A frame is suspended, the lower part of which having pressers attached is caused to move backwards and forwards in the tub by means of a wheel and crank, and thereby to agitate and compress the cloth against the sides of the tub, and work it backwards and forwards till cleansed.

[Printed, 8*d*. See Rolls Chapel Reports, 6th Report, p. 144.]

A.D. 1790, April 29.—N°1748.

NICHOLSON, William.—"A machine or instrument on a "new construction for the purpose of printing on paper, linen, "cotton, woollen and other articles. In the first place, I make "my moulds, punches, and matrices for casting of letters in the "same manner and of the same materials as other letter founders "do, excepting that instead of leaving a space in the mould for "the stem of one letter only, I leave spaces for two, three, or "more letters to be cast at one pouring of the metal; and at the "lower extremity of each of those spaces (which communicate by "a common groove at top) I place a matrix, or piece of copper, "with the letter punched upon its face, in the usual way. And, "moreover, I bring the stem of my letters to a due form, and "finish not only by rubbing it upon a stone and scraping it when "arranged in the finishing stick, but likewise by scraping it on "one or more sides in a finishing stick whose hollowed part is "less deep at the inner than the outer side;" "and the purpose "accomplished by this method of scraping is, that of rendering "the tail of the letter gradually smaller the more remote it is or "farther from the face."

"I impose or dispose my letter for printing in the common "manner, to be used in conjunction with my newly invented im"provements, and I likewise impose it in frames or chases adapted "to the surface of a cylinder of wood or metal, and fasten it to "the said surface by screws or wedges, or in grooves, or by other "methods well known to workmen."

The disposition "of blocks, forms, plates, types, or originals "upon a cylinder, and also that the cutting, carving, engraving, "chasing, and casting, modelling, or making blocks, plates, types, "or originals of a cylindrical form, as aforesaid, are parts of my "new invention."

"In the second place, I distribute or apply the ink or colouring "matter upon the surface or in the interstices of the blocks, forms,

" plates, types, or originals aforesaid, by causing the surface of a " cylinder, smeared or wetted with the colouring matter, to roll " over or successively apply itself to the surfaces of the said blocks, " &c., of whatever figure or construction such blocks, &c., may " be; or else I cause the said blocks, &c., successively to apply " themselves to the said cylinder."

The surface of this colouring cylinder is covered with leather, or the dressed skins called felts, or with woollen, or linen, or cotton cloth, when the color to be used is thin as in calico printing.

" In the third place, I perform all my impressions by the action " of a cylinder or cylindrical surface, that is to say, I cause the " paper, or cloth, or other material, intended to be printed upon " (and previously damped, if necessary,) to pass between two " cylinders or segements of cylinders in equal motion, one of " which has the block, form, plate, assemblage of types, or original, attached to or forming part of its surface, and the other is " faced with cloth or leather," or " I cause the block, &c., previously coloured to pass in close and successive pressure, or contact with the paper, or cloth, or other material, wrapped round " a cylinder with woollen," " or otherwise I cause the last-mentioned cylinder with the paper, or cloth, or other material, " wrapped round it to roll along the face of the block, &c.," or " otherwise I cause a cylinder having the block, &c., attached to or " forming part of its surface, to roll along the surface of the paper, " cloth, or other material, to be printed, and previously spread out " upon an even plane covered with cloth or leather, the said cylinder being supplied with colour by means of a colouring cylinder " herein-after to be noticed."

The colouring cylinder last referred to is "an instrument for " printing floor cloths, paper hangings, and the like, with stiff " paint and a brush," and consists of a large roller, with a handle and axle resembling a garden roller, made of thin metal, through which the pattern is cut. Inside of the roller and attached to the axle is a colour trough with two furnishing rollers and a cylindrical brush. On moving the large metal roller along the surface of the cloth the inner rollers revolve and feed the brush with color, which in its turn brushes the colour through the engraving on to the fabric to be printed.

[Printed, 7*d*. See Repertory of Arts, vol. 5, p. 145; Mechanics' Magazine, vol. 6 p. 258; Engineers' and Mechanics' Encyclopedia, vol. 2, p. 343; also Practical Mechanics' Journal, vol. 1, p. 248.]

A.D. 1790, July 10th.—N° 1759.

CRESSWELL, Joseph.—" An engine for washing linen, woolen, " and every other article that requires washing, with greater expe- " dition than by any other method now in use." This invention may consist of a pinion and rack actuated by a handle; to the bottom of the rack is fixed a plunger consisting of cylinders (or round pegs). This rack and pinion cause the plunger to rise and fall perpendicularly, and press (or " peggy ") the linen underneath placed in a box containing the liquor.

[Printed, *6d.*]

A.D. 1790, July 28.—N° 1766.

BARCLAY, Robert.—" A method of making punches for " stamping and punching the matrices of printing types for " letters and devices, and for impressing on copper, cuts or other " printing plates, and on dies and on various metals, or on any " other substance, certain marks which cannot be counterfeited." This Specification states, there being an " infinite variety in all the " works of nature," whence it will follow that any hard brittle substance broken into two parts, will exhibit certain irregular figures, which in infinite repetitions of the experiment will never be exactly imitated. In furtherance of this idea he breaks small bars of steel and produces by the irregularity of the fracture an endless variety of punches. Secondly, he " combines art with nature " by superadding to these natural punches certain cuts with the graver; or polishes part, or drills holes in them.

[Printed, *3d.* See Repertory of Arts, vol. 2, p. 4; and Rolls Chapel Reports, 6th Report, p. 183.]

A.D. 1790, August 10.—N° 1770.

THUNDER, Edward.—" A machine or machines for mangling " and washing every article made of linen, wool, silk, or cotton " that will bear washing, (and which may be applied to other " useful purposes) whereby those articles will receive much less " damage than by any method now in use." This invention consists, first, in an apparatus for mangling linen, or other goods. The mangling box is so arranged that it can be hoisted up at pleasure off the roller on which the linen is placed by means of a rope and pullies actuated by a handle or by wheels. The mangling box is also attached to oscillating framework called a "pendulum," which prevents the box from overbalancing as it is worked to and fro by the handle.

Secondly, in an apparatus for washing linen. This may consist of a tub or vessel to contain the water or soapsuds and linen, having a false bottom, in which a presser or plunger is caused to work up and down, thereby pressing, agitating, and washing the linen placed between the presser and the false bottom. The presser is actuated by an oscillating weighted lever called a pendulum, acting on a crank connected with the shaft of the presser. This apparatus may be made double acting or have two pressers; and it may be attached to the mangle with which it will be worked simultaneously by one person.

[Printed, 9*d.*]

A.D. 1790, August 18.—N° 1772.

HANCOCK, JOSEPH.—"A machine for washing, cleansing, and "scouring of linen, woollen, wool, cotton, silk, or any other "commodity that requires washing, cleansing, or scouring." This invention relates, first, to a washing apparatus, which may consist of two tubs or troughs holding the water or soapsuds, and the material to be washed or scoured. In one of the tubs a horizontal presser or washer is caused to oscillate or rock backwards and forwards by means of a lever and crank, and thereby press and wash the fabric placed under it; and in the other tub, actuated also by a lever and crank, are perpendicular washers that press and stamp the fabric. Secondly, to a "wringing machine," consisting of an oblong box, at one end of which is a block or a pin or pins, to which one end of the wringing net or cloth is attached; at the other end of the box is a moveable block to which the other end of the wringing cloth is attached, and a hand windlass, by the turning of which the wringing cloth containing the goods is twisted round, and the water expressed.

[Printed, 9*d.*]

A.D. 1790, December 8.—N° 1786.

KENDALL, WILLIAM.—"A machine for washing, cleansing, "and scowering all sorts of linen, cotton, or woollen apparel and "household furniture, that generally require to be washed, "cleansed, or scowered by families at home, constructed so as to

" save considerable labour and expence." This invention relates, first, to a washing apparatus, and consists of an oblong square box with a circular shaped bottom, in the centre of which is suspended a presser or washer, which is caused to oscillate from side to side of the box containing the goods and soap suds, and thereby press, turn, agitate, and wash the linen, &c. The " presser " or washer is moved to and fro by means of a pendulum or lever actuated by the hand, to which may be attached a piece of clock work to indicate the number of strokes the penduldm makes and thereby regulate the duration of the time required for washing. Secondly, to a " wringing machine " consisting of a frame and box, above which the material to be wrung is stretched; it is attached to the frame at one side, and at the other to a windlass. By turning the windlass the material is twisted round and the liquor expressed. Thirdly, to a machine for expressing water or liquor from goods. The goods may be placed between two blocks of wood, grooved and channelled to allow of the escape of the liquor, and be pressed together by means of a screw actuated by a hand windlass.

[Printed, 8*d*. See Rolls Chapel Reports, 6th Report, p. 144.]

A.D. 1791, March 18.—N° 1797.

JEFFREYS, George.—" A method of dyeing woollen cloths, " stuffs, and other materials in various colours, and of any figure, " pattern, or design required, by means entirely new." A mild paste is first made, consisting of equal weights of tallow and pipe clay, heated together and well mixed. The cloth to be dyed, or rather printed, is extended on a table, on which is placed a thin plate of brass $\frac{1}{20}$ of an inch in thickness, perforated to form the desired pattern. On this plate is placed a metal frame, and into the frame is poured the above paste. The frame is then slid along the perforated plate; the paste penetrates the cloth where the apertures are, and the bottom edge of the frame acts as a doctor by clearing off the superfluous paste. When stripes only are required, such as are executed by the wax calico printers, the stripes are cut in the thin plate, the frame is placed on it, and when filled with colour the cloth underneath is drawn steadily by a windlass from under it, so that it is striped with the paste from end to end. The cloth so pasted is hooked on a frame and dyed. The paste is afterwards got rid of by fuller's earth.

[Printed, 4*d*. See Repertory of Arts, vol. 8, p. 296.]

A.D. 1791, May 2.—N° 1802.

MURDOCK, William.—"The art or method of making (from "the same materials, and by processes entirely new) copperas, vitriol, "and different sorts of dye or dying stuff, paints, and colours, "and also a composition for preserving the bottoms of all kinds "of vessels, and all wood required to be immersed in water, from "worms, weeds, barnacles, and every other foulness which usually "does or may adhere thereto." The patentee claims, first, the making of yellow paint and dying stuff, by roasting in a kiln pyrites, commonly called in Cornwall, mundick; and, secondly, "to make "green vitriol or copperas, take any quantity of the remains of the "above calcined ores or minerals, after the same are burned, and "wash the same in water, and then place such water on the top or "any other part of the aforesaid kiln, house, oven, cone, or heap, "whilst burning, and cause the water to evaporate by the heat of "the ores or minerals then burning in the said kiln, &c., or cause "the said water to evaporate by the heat of the the sun to a "chrystalizing point, and let the same stand for twenty-four "hours or longer, and chrystals of copperas or green vitriol will "thereby be produced."

[Printed, 3*d*. See Repertory of Arts, vol. 9, p. 97.]

A.D. 1792, January 16.—N° 1845.

ECKHARDT, Anthony George.—"Invention of laying on or "imprinting grounds or coats of composition, or painting upon "sattin, silks, cotton, linen, velvets, leather, or any kind of cloth, "stuff, or paper, for the receiving impressions of engraved copper "plates in all sorts of colours, and for other purposes." The "first ground or coat" "being for the reception of plain or ordi- "nary prints or ornaments, is prepared by laying on the finest "and thinnest satin or silk, linen, cloth, or other suitable thing, "a thin coat of the composition No. 1, herein-after mentioned, "with a colour knife. When the composition is dry it must be "painted over with a brush, very thin, in oil, or any other colour "desired. The sattin, or other suitable thing, being thus pre- "pared, will then receive the copper plate impression intended to "be made, by the use of a common rolling copper printing press. "The second, being for receiving impressions of superior or best "prints, is to be done in the following manner:—First, take off "by means of transparent paper, or by any other means more "convenient, the size and shape of the copper plate print, painting, or drawing intended to be printed upon the grounds; then "provide a well burnished copper plate, of larger dimensions than "the subject intended to be produced. Trace upon this plate the "outline of the print, drawing, or painting, with a dry needle or "tool; then work down the surface of the plate within the lines "all over, perfectly smooth and even, of a sufficient depth to hold "the necessary body of colour, with tools called rollers or champignions, used by French engravers, or by any other tools used "in the mezzotints or dotting way of engraving, which work "must afterwards be scraped gently all over, to make it perfectly "even, with an instrument called by engravers a scraper. The "plate thus prepared is then ready to receive the colour or composition No. 2, which is to be done in the following manner:— "Fill the plate with the colour or composition; then wipe it in "the manner used by copper plate printers, and take off the impression with a good rolling printing press."

"Preparation of the composition No. 1.—Take three fourth "parts of fine starch, and boil it in water to the consistency commonly used by paper stainers; then add, while it is hot, one "fourth of bees' or virgin wax (ready melted) gradually, by small "degrees, stirring the starch during the process; when cold it is "fit for use."

"Preparation of the composition No. 2.—This is composed of "nut oil, burnt like printing oil; in common work burnt linseed "or ordinary printing oil will do. Poppy oil, or other oils or "syrops may be substituted for nut oil. These oils are to be "mixed with such colours as are wanted."

[Printed, 3*d*. See Rolls Chapel Reports, 6th Report, p. 185.]

A.D. 1792, March 2.—N° 1856.

WEBSTER, ROBERT.—"A mill or machine on an entire new "construction, for the purpose of washing and cleansing every "article which has hitherto been washed by hand, in a much more "expeditious and less expensive manner than by any other machine or method hitherto discovered." "This mill or machine "consists of a tub or barrel, which I call the washer, composed "of 3, 4, 5, 6, 7, or more sides or staves, forming angles all round; "through these sides, holes or cavities are to be made, so as to

" admit the free circulation of the water. On all or most of the " angles within side the washer are fixed pegs or ribs, to extend " the whole length of the washer, projecting towards the centre, " and of a width or depth proportioned to the size of the washer. " These, as well as the angular form of the washer, are intended " to keep the articles in constant motion during the operation of " washing, by which means each part or fold will be equally sub- " ject to pressure and friction, and consequently more effectually " cleansed than if such articles were to maintain the same uniform " position." " The washer thus formed is deposited and works in " a box or cistern," with a close fitting cover, and is caused to revolve by means of a winch or handle; or by the application of a common cog wheel and pinion, suitable arrangements are made for the putting in and taking out of the goods, and for filling with liquor and emptying the apparatus. This apparatus appears to work after the manner of a dash-wheel.

[Printed, 3*d*.]

A.D. 1792, April 25.—N° 1872.

TAYLOR, Clement, and TAYLOR, George.—A new method " of decomposing or removing all sorts of colours in linnens and " cottons, and for whitening all other kinds of linnens and cot- " tons in different stages of the paper manufactory." This invention is carried out by first preparing a chlorine liquor or a solution of " dephlogisticated marine acid," by means of distilling a mixture placed in suitable retorts, consisting of " sixteen pounds of com- " mon salt, eight pounds of manganese, and twelve pounds of oil " of vitriol; dry the salt, and pound or grind it sufficiently fine " to admit of its being sifted through the finest wire sieve and " likewise " grind and sift the manganese; add thereto, in the retorts " the twelve pounds of oil of vitriol," and " six pounds of " cold water." The chlorine, liberated by the aid of a gentle heat, is conducted into a receiver containing two hundred gallons of water, and there condensed. A second solution is prepared, consisting of " two pounds of pearlash and one pound of lime " previously slacked, or two pounds of pearl ash only." The goods, say " one hundred weight of coloured or coarse rags " reduced to a pulp, or half stuff nearly washed," are put into an " engine," having wash boards, along with the above solution of pearlash and lime. After this " engine " has gone for an hour,

the goods are withdrawn and "cleansed." The goods are then put into a bleaching machine, which may consist of a long cylinder revolving on its axis, in which are fastened three agitating boards, with pins or pegs fastened to them, into which is also put the chlorine liquor, first prepared, and some water. "It will re-
" quire about four hours to compleat this part of the process, at
" the expiration of which time empty the aforesaid pulp or half
" stuff out of the bleaching machine into the engine, and wash it
" until it loses the smell it imbibed from the operation."

[Printed, 5*d*. See Rolls Chapel Reports, 6th Report, p. 145.]

A.D. 1792, May 21.—Nº 1882.

HARRISON, John.—"An engine on an entire new construction
" for completely washing and cleansing every article, which has
" hitherto been washed by hand or otherwise, in a more expe-
" ditious and effectual, and less expensive manner than by any
" other machine or method hitherto discovered." This engine is called the "washer-womans assistant," and consists of a "base [a case?] "or tub," divided into two parts by a partition called the "centre post," at the bottom of which are two large holes, to allow the liquor or soap suds to flow freely from one compartment to the other. Each compartment has a false bottom, called the "under plattin," having pegs or balls attached to its upper surface; the linen is placed between these plattens and upper plattens having also pegs or balls attached to their lower surfaces. The upper plattens being connected by means of perpendicular rods and a lever, with weighted pendulums attached, are caused to move up and down, and press, agitate, and cleanse the linen.

[Printed, 9*d*.]

A.D. 1792, November 28.—Nº 1921.

BAILEY, James.—"An entire new machine for the purpose of
" dying, staining, or printing of silk handkerchiefs, cottons,
" callicos, muslins, and other articles capable of being dyed,
" printed or stained." This is effected "by means of frames,
" upon the faces of which are small blocks, projecting in such a
" manner, as when the face of one frame is put upon the face of
" another frame the blocks are all exactly opposite, and corre-
" sponding with each other; so that a handkerchief or other

" article to be dyed being put between, and the frames fastened " together, the dye will have access to every part of it, excepting " those places which come between the blocks, which are preserved " of the original colour of the article, from the effects of the dye. " The frames are flat surfaces, of wood, brass, copper, or other " metals, or composition of any size or shape, and may have " one face with blocks, to be used with or against one face without blocks. The blocks may either be parts of the same surface " left projecting by being cut out of the solid, or may be made " separately of wood, brass, or copper, or other metals or compositions, and fastened upon the surface of the frame. They may " also have devices on them, or holes drilled to admit the dye, to " form a spot or other device. The frames are prevented from " shifting by holes and corresponding pins, and fastened together " by screws and nuts; on the frames are fastened handles for " raising them in and out of the copper by means of pulleys."

[Printed, 3*d*. See Repository of Arts, vol. 1, p. 225.]

A.D. 1793, January 23.—N° 1932.

BENTLEY, NATHANIEL.—" A machine to be used in the scouring, milling, and washing of hosiery, linen, and woollen cloths " and cloathing, and other things manufactured and made from " wool, cotton, thread, and silk, or any of the raw materials used " in those manufactures; a thing never before put in practice, " and which would be of great public benefit and utility." This machine consists of a round vessel or tub to contain the liquor or soap suds; in the centre of the tub is a pillar of iron fastened to the bottom, and protected by a circle of wood. At the top of the pillar is a cross double lever so connected to the pillar as to allow of its rotating and also of its oscillating up and down; at each end of the lever are suspended three or more " fallers " and also a handle for the purpose of working up and down the lever with its suspended fallers. The " fallers " are pieces of wood notched at the lower edges, which, by means of the up and down motion given to them through the levers, press and agitate the linen, &c., and wash or scour it.

[Printed, 5*d*. See Rolls Chapel Reports, 6th Report, p. 188.]

A.D. 1793, March 25.—N° 1941.

JONES, ROWLAND.—" Engines or machines for stamping and " striping woollen cloths, kerseymeres, silk velvets, cotton velvets,

" velveteens, velverets, and thicksetts."—This is an embossing machine and consists of three rollers working perpendicular to each other in a frame. The upper and lower rollers are of wood, The middle roller is hollow and made of iron and heated by hot irons. The cloth passes between the bottom roller and the iron roller, which makes the impression.

[Printed, 6*d*. See Rolls Chapel Reports, 6th Report, p. 145.]

A.D. 1793, April 30.—N° 1953.

ECKHARDT, Francis Frederick.—" Method of preparing " and printing paper in different patterns, and to silver it over " with fine silver leaves, so as to resemble damask lace and various " silk stuffs, to be used for hangings and other furniture for " rooms." The invention is carried out in the following manner:— " When the paper is coloured in the ordinary course, size it properly with a size of isingglass, parchment, or common size, so " as to bear an oil or a varnish gold size. This being dry, lay " with a printing block or brush on those parts where the ornaments are intended to appear, gold size or any of the other " compositions that will answer the same purpose; when the gold " size or composition is nearly dry lay on real fine silver leaves " and then size the paper well two or three times, and when dry " varnish it over with any of the various sorts of varnish which " will resist damp."

[Printed, 3*d*. See Repertory of Arts, vol. 2, p. 87; Rolls Chapel Reports, 6th Report, p. 187.]

A.D. 1793, April 30.—N° 1954.

ECKHARDT, Frances Frederick.—" Method of preparing " linen and cotton cloth with a paste, so as to form a smooth and " regular surface, and yet leave the cloth of a pliable quality, for " the purpose of receiving a coat of water size colours, upon which " are afterwards printed ornaments in fine silver and gold, or " colours in different paterns, so as to resemble damask, lace, and " various other silk stuffs, which being afterwards varnished, may " be washed with water without injury, to be used for hangings " and other furniture for rooms." This invention consists in preparing " a paste with flour, starch, or any of the ingredients " with which paste is or can be made with water or milk. When " the paste is made, mix with it a sufficient quantity of wax, so as

" to preserve the linen, cotton, or cloth intended to be used, of a " pliant or flexible quality; then strain the linen, cotton, or " cloth upon a frame, and fill the pores or interstices with the " above paste or composition; this is to be done so as to render " the surface as smooth as possible. When the linen or cloth is " compleatly dry, lay on a proper coat of water colours mixed with " gum or size, according to the nature of the colour intended to " be used; this being dry must be well sized over, and when " again dry varnished over with any of the various sorts of varnish " which will resist water as often as it shall be found necessary, " according to the nature of the colour used. If it should be " wished that ornaments in silver, gold, or colours to resemble " damask, lace, or any of the various silk stuffs, should be " printed on the linen or cloth, then, after the coat of water colours " has been laid on, or is dry, gold size, or any of the other compositions that will answer the same purpose, must be laid with a " printing block or brush on those parts of the linen or cloth " upon which the ornaments are intended to be placed. Before " the size or composition is compleatly dry, gild or silver it with " gold or silver leaves, so as to describe the ornaments; this being " done, size it over once or twice, as occasion may require, and " when thoroughly dry varnish it over with any of the varnishes, " and in the manner above mentioned."

[Printed, 3*d*. See Repertory of Arts, vol. 2, p. 90; and Rolls Chapel Reports, 6th Report, p. 187.]

A.D. 1795, February 28.—N° 2040.

BIGG, JOHN.—"An entire new mode of bleaching paper by a " cheap and expeditious process, in consequence of which the " colour of such paper will be so effectually fixed as not to be " affected by heat or any length of time." This invention consists, firstly, in placing the paper to be bleached on wooden racks in a vessel or chamber, " wooden box or receiver," of suitable dimensions, and causing to enter therein the fumes or chlorine liberated from a mixture of manganese, salt, and sulphuric acid. When the paper is bleached it is gently pressed, and then dried " in lofts in the common way," or the paper may be bleached by steeping it in a solution of chlorine in water at a suitable degree of strength, and for an efficient length of time. Secondly, in " wet-" ing out" the paper so bleached in a " liquor which will effectually " fix the colour." This liquor consists of " eight pounds of

" alum " dissolved in about " one hundred gallons of cold spring " water." The paper so wetted, on being pressed and dried, may afterwards be " sized in the usual way." " By this process paper " that has become mildewed, or lost its colour, will be compleatly " restored."

[Printed, 3*d*. See Repertory of Arts, vol. 6, p. 235.]

A.D. 1795, November 3.—N° 2073.

FLOYD, William.—" A bucking tub or cistern, with a furnace " affixed to and communicating with the same, of a new and " peculiar construction, for the purpose of bucking cloth, yarn, or " other things usually bleached by means of bucking, the use of " which will occasion a very considerable saving of fuel and " labour." This invention may consist of a " bucking tub or " cistern, made of wood, and lined with copper or lead, four feet " six inches long, three feet six inches wide, and two feet six inches " deep, in which the cloth, yarn, or other thing usually bleached, " is to be put and placed for the purpose of being bucked." Placed by the side of the bucking cistern, and on a level with it, is " a furnace of copper or cast iron, one foot six inches in diameter, " of the same depth of the bucking cistern." A pipe communicates between the bottom of the cistern and the bottom of the furnace, and a trough again communicates between the top of the furnace and top of the cistern. By means of the heat of the furnace the liquor is caused to circulate, being drawn in at the pipe at the bottom, and flowing upwards, is discharged on the top of the goods in a boiling state and in a continuous manner.

[Printed, 3*d*. See Rolls Chapel Reports, 6th Report, p. 190.]

A.D. 1795, November 19.—N° 2075.

CARPENTER, Elias.—" A method of bleaching paper in the " water leaf or sheet, and sizing it without drying, whereby the " manufacture of it will be improved by shortning its process, " lessening its expence, and considerably increasing its value." This invention consists, first, in submitting paper, in its " wet " state " to the action of the " vapor or steam " [chlorine gas] arising from the action of " vitriolic acid," " mixed with an equal " quantity of water, impregnated with the fumes of burning " sulphur " upon " manganese and salt," contained in a retort, heated by hot water in preference. The wet paper may be placed in frames in a box, suspended over slips of glass, and be exposed to the gas for eight or ten hours. The paper may then be sized with the following size:—"Take one hundredweight of pieces of "skins, of which size is usually made, and, after boiling it to a due "consistance and straining it, mix with it the following ingredients, "(viz^t.) fourteen pounds weight of allum, seven pounds of calcined "vitriol, and one pound of gum arabic." The paper may then be pressed and finished in the usual way.

Secondly, "where the rag is of a course, bad quality, abounding "with sheaves, it will require the following previous preparation." "I prepare a lixivium from equal quantities of pearlash and quick-"lime, fresh from the kiln, the proportion of about four pounds "to each hundred weight of the article." "With this lixivium I "either macerate my rag or boil it."

The patentee proposes to put alkali or lixivium on the bottom of the bleaching case, which will absorb the noxious vapor and make it less pernicious to the people employed, immediately on its being opened.

[Printed, 4*d*. See Repertory of Arts, vol. 5, p. 369; Rolls Chapel Reports, 6th Report, p. 190.]

A.D. 1796, February 4.—N° 2084.

PAUL, William.—"New invented machine upon the general "principles of my old machine, but with such improvements as to "render the same of more extensive utility, for printing of cottons, "linens, woollens, silks, or any articles fabricated, or materials to "be fabricated or mixed of said articles; also, paper for hangings "or other uses." In the description of the improvements referred to above it is stated, in the first place, that the rollers used may be made of wood, copper, brass, pewter, or any metal or mixture of metals. They may be cut, engraved, cast, or made either "convex or concave."

The chief novelty in this invention is the introduction of what is called the "box wheel." This wheel, as here described, is made in two parts, one of which, having four slots in it, is the driving part. The other part is a plate, having four holes in it, and can be attached to the mandril. By bringing these together, then slackening the screws, and sliding one part on the other, and again fastening them, the printing rollers are adjusted one to the other. The mandril is described as having "two necks to work in steps;" "two shoulders to work against the steps, to prevent motion

" or end play;" "two spaces, to which weight may be applied;" and it is made square, "to prevent the roller turning on the mandril." The "traverse motion" is described as a crank revolving at the end of the machine, and at a little distance from it, to which the tearing brushes are attached by rods and made to move rapidly backwards and forwards.

The principal machine drawn and described is an eight colour surface machine, the rollers being arranged round the upper surface of a large bowl lapped with woollen cloth, and are driven by a wheel fixed on the end of the bowl. The circumference of the rollers is made equal to a divisional part of the circumference of the bowl, so that the impressions of each roller falls continually on one part, and thereby obviates the necessity of a blanket or other backing, revolving with the article printed. The furnishing rollers, colour troughs, and tearing brushes are placed above the rollers in a semicircular moveable frame, which can be hoisted up by pullies, so that the printing rollers can be easily taken out. There is also a drawing and description of two similar machines of four colours each, placed in one frame, for the purpose of printing four colours on each side of the cloth at one operation. The cloth passes under four of the printing rollers, and is printed on the face side, then goes round with the bowl, and is transferred to the other bowl, on which are placed the other four rollers, where it is printed the other four colours on the reverse side. By covering the bowl with oil cloth, and printing with some of the rollers direct on it, and then at the same time printing with the other rollers in the usual way, the fabric will be thereby stained on one side by the marking off of the bowl, and printed by the rollers on the other; the circumferences of the rollers and bowl being properly adjusted to each other.

Two modifications of the first-mentioned machine are described. In the first modification the eight printing rollers may be placed horizontally in a frame on wheels, and the printing be performed by moving the frame and rollers along a flat table on which the piece of cloth is placed; and in the second one roller, placed in a frame, is reversed in its position, and, by moving across the piece, prints it transversely.

If engraved cylinders be substituted for surface rollers in any of the above machines, then Bell's colour doctor box is used instead of the furnishing rollers and brushes.

[Printed, 11*d.*]

A.D. 1796, February 17.—N° 2089.

GRIMSHAW, John.—"Certain vegetable substances, in particular states of preparation, to be used in clearing or bleaching, "or assisting to clear or bleach, printed, painted, stained, or "dyed cloths, or other materials, consisting of or manufactured "from linen, cotton, hemp, silk, or wool, or any two or more of "them; and other printed, painted, stained, or dyed goods, "manufactured or produced from animal or vegetable materials, "or both." The manner in which this invention may be exercised is as follows:—"I take any quantity of common brewhouse grains, "such as remain after ale or beer has been brewed in the common "way, from barley malt [or other grains], and put them close "together into a vessel, tub, cask, or cistern, for the purpose of "turning them sour." When the grains are sour, I put two, "three, or four Winchester bushels of them into a common sized "calico printer's dyeing copper pan, nearly full of boiling water," and wrince therein four pieces of printed calico for five or ten minutes.

[Printed, 3*d*. See Repertory of Arts, vol. 5, p. 173.]

A.D. 1796, August 25.—N° 2134.

WILDE, Arnold, and RIDGE, Joseph.—This invention includes a new method of making steel doctors for printers. The doctors are made of steel and iron pared or cut into proper shape. They are put into a frame to be made red hot, and then immersed in water or a composition of oils or grease, to be hardened in the frame in the direction wanted. They are then tempered over the fire, and kept in motion till the oil smokes, and then further till a blue blaze alternately appears and disappears. They are then to be polished between proper stones, or between plates of metal, or blocks of wood, with sand, mercury, or other proper material.

[Printed, 3*d*. See Repertory of Arts, vol. 16, p. 389; and Rolls Chapel Reports, 6th Report, p. 191.]

A.D. 1796, November 19.—N° 2147.

COBB, Thomas.—"A method of making coloured paper superior for brightness and richness of colour, to any made by any "other person, and which paper when made after the manner "invented by me, may be used as well for the purpose of hanging

" rooms, as for writing, printing, drawing, and various other " purposes of paper." " When the rags or other materials are sufficiently washed by means of the paper engine, made white, and " reduced to half stuff in the usual manner for beating, I drain " off the water and convey the half stuff intended to be coloured " into the vessel or vessels in which it is to be dyed, where I " subject it to the processes commonly used in dying of linen, " cotton, silk, or wool, according to the materials of which the " half stuff is composed. I only vary by preparing separately " from the usual materials for dyeing a clear decoction or infusion " of the dyeing materials (for producing bright and rich colours, " viz., scarlet, yellow, green, pink, mazarine and China blue), " which, previous to the half stuff being immersed therein, are " strained, filtered, or allowed time to deposit their grosser parts. " In cases where heat must necessarily be applied during the " dyeing of the half stuff, which are well known to dyers, I use " false bottoms to the vessel or vessels in which it is to be dyed, " which false bottoms prevent the half stuff from touching the " bottom of the vessel, and thereby being injured by the fire, and " should be pierced with small holes to admit the circulation of the " decoctions or infusions in the vessel. When the half stuff is " sufficiently coloured, I remove it from the dyeing vessels, and " return it to the engine; and after having washed it for a short " time in those cases which require it, in order to brighten the " colours, and which are well known to dyers, I beat it by the " paper engine as usual into pulp or stuff for the vat, after which " it is made into paper in the usual manner. In such colours as " are dyed cold, the decoctions or infusions may be mixed with " the half stuff whilst in the engine itself, or it may be dyed in a " separate vessel."

[Printed, 3*d*. See Rolls Chapel Reports, 6th Report, p. 101.]

A.D. 1797, March 25.—Nº 2176.

BARTON, JOSEPH.—" An improved method of preparing indigo " for the purpose of dying of wool, silk, linen, and cotton, and " for giving the blue shades to all kinds of linnens, woollens, and " paper in a more perfect manner than hitherto discovered." Add to indigo ground fine " a sufficient quantity of tin, iron, zinc, or " allum, or all of them combined, to give a fixing base to the " colouring matter or the indico, carefully neutrallizing any super-

" abundance of solvents used in dissolving the indico and metals." The solvents used are acids and alkalies.

[Printed, 3*d*. See Repertory of Arts, vol. 9, p. 163.]

A.D. 1797, July 26.—N° 2181.

JOHNSON, Henry.—" A certain waterproof compound and a " vegetable liquid, which liquid is for the purpose of bleaching, " whitening, and cleansing woolens, linens, cottons, and other " articles in a superior manner to any other method or preparation; " and also for preparing stuffs or cloths made of woolen, &c." " in order to render them impenetrable to wet, and more elastic " and durable when made into garments, &c., for wear, and which " stuffs or cloths I call hydrolaines." The " vegetable liquid " or " bleaching lixivium " is compounded as follows:—To a solution of " horse chesnuts or orange peels and kernels, or the offals and " galls of fish, or either of them," made by boiling, or to a solution of that " calcined substance called British barilla " " I add " one pound of kelp or wood ashes refined, or pearlashes them- " selves," and also " Reigate lime," in order " to give it the cha- " loric " and to modify its causticity." " To this prepared liquid " (drawn off fine) I add the following preparation, viz., to every " quart of fish, linseed, or any other oil, I put forty quarts of water, " and boil it with half an ounce of salt of sorrell, salt of sugar, " or rectified salt of tartar, which incorporates the oil and the " water; and this, after settling for twelve hours, I draw off fine; " and to every twelve quarts of the above prepared liquid I add " one quart of this last incorporated oil and water."

" Secondly, as to the waterproof compound, I proceed as fol- " lows:—After the linen, woolen, cotton, or silk stuffs, or cloths, " hats, or leather are prepared by the above described blanching " lixivium, I stretch them in a frame, and having dissolved caout- " chouc or india-rubber in spirits of turpentine (the smell of which " is taken off by oil of wormwood) and spirits of wine in equal " quantities, the caoutchouc (having become a varnish) I spread " with a large piece of the undissolved caoutchouc (instead of a " sponge or brush) upon the wrong side of the prepared stuff, or " cloth or leather, and then sift over it any colour cloth, or silk, " or worsted, or cony or other wool cut fine, in the same manner " as flock paper is made, and being let to dry for a day or two " this flock, by its adhesion to the caoutchouc is equal to any " lining."

[Printed, 3*d*. See Repertory of Arts, vol. 10, p. 9.]

A.D. 1797, December 12.—N° 2204.

CROOKS, John.—" A new method of making soap and bleaching by means and use of mineral and vegetable alkalies." This invention consists, first, in making " soft soap " from " fish of any " kinds, whether in their original unmanufactured state or in a " state of refuse, after they have been used in other manufactures, such as, for example, after the oil has been boiled or taken " from them." The fish, cleansed or otherwise, are thrown into soapers' lees and boiled for three to six hours. One-eighth of the weight of the fish of tallow or oil is then added, and the whole is well boiled together. " Common turpentine " may be added to prevent the " fishy smell," and palm oil to improve the colour. " Hard soap " may be made by adding more tallow to the fish than above, and reboiling the mixture with the addition of more lees and rosin, and the colour may be improved by the addition of palm oil. Fish driven on shore may be preserved by pouring over them strong lees, to be made afterwards into saponaceous matter, soaps, and oils.

This invention further consists in evaporating down to dryness and calcining " soap boilers' waste lees or bleachers' waste lees" and using the product again for bleaching. The waste lees may be filtered, then evaporated down to the consistency of treacle in shallow iron vessels by means of the escaped heat from the calcining oven, into which the concentrated lees are placed along with " charcoal," or " other combustible matter," or " peat or small " coal uncharred," as also "with new burnt marble " which " must " be free from any irony, clayey, or sandy particles or any other impurities. The whole are to be calcined into a black salt." This black salt is then dissolved and filtered, and the solution again evaporated to dryness, and thereby converted into " grey salts fit " for bleaching, dying, or rectifying."

The Patentee next describes his process for making " bleaching liquor." " For this purpose I throw one pound of calcined " marble, quite hot from the kiln, into any kind of vessel " containing ten pounds of soft water, where after being once " stirred about it must remain close covered up for seven hours, " or until the water has imbibed as much of the marble as " it can, and then both are to be strained." " After which I " impregnate this solution with the common materials of what " is commonly called gas or chemical liquor till the solution " be fully saturated, the effect of which is that the marble solution

" will imbibe far more gas than common water can, for as it is " certain that the more alkali there is in the water the more gas " will be imbibed in it, so the solution of calcined marble operat- " ing as alkali, and being a substitute for it, will imbibe far more " gas than simple water by itself can, and the effect again of this " complication by the addition of the power contained in the cal- " cined marble, and of the power obtained by the increased quan- " tity of gas, will be that this bleaching liquor will go further in " work by admitting a greater quantity of water to be mixed with " it in bleaching, and will, moreover, make that work better."

[Printed, 6*d*. See Repertory of Arts, vol. 9, pp. 73 and 87.]

A.D. 1798, January 23.—N° 2209.

TENNANT, Charles.—A method of using calcareous earths, the earths strontites and barytes, all of them, either in their carbonated or calcined states, but more properly in the latter state, instead of alkaline substances, for neutralizing the exygenated muriatic acid used in bleaching, and for employing lime, strontites, and barytes, the earths above mentioned, in the other parts of the process of bleaching, instead of pot or pearl ashes, kelp, barylla, or other alkaline substances whatsoever. This invention consists, first, in making a "bleaching liquor" by means of saturating " lime," " strontites," or " barytes," held in suspension by water by means of " oxyginated muriatic acid gas." The process may be as follows:—" In a receiver capable of containing 140 gallons " wine measure, dissolve 30 lbs. common salt (or other substance), " which appears useful only in giving an additional degree of " specific gravity to the water, and by that means making it easier " to keep the lime to be afterwards added suspended." " When " this salt is dissolved add sixty pounds of finely-powdered quick " lime (in preference), and into the retort of the apparatus put " thirty pounds manganese, mixed up with thirty pounds common " salt, upon which pour thirty pounds of oil of vitriol, previously " diluted with its bulk of water." The gas evolved with the assistance of heat is passed into the receiver, where it combines with the lime, forming, after settling, a strong clear solution fitted for bleaching purposes. The Patentee also claims the use of the " earths, barites, and strontites " in " the other processes of bleach- " ing, instead of alkaline substances."

[Printed, 3*d*. See Repertory of Arts, vol. 9, pp. 303 and 308; Engineers' and Mechanics' Encyclopedia, vol. 1, p. 171; Webster's Reports, vol. 1, p. 125; Webster's Patent Law, p. 49 (also p. 127, Case 36); Carpmael's Reports on Patent Cases, vol. 1, p. 177; Davies on Patents, p. 429.]

A.D. 1798, May 25.—Nº 2237.

FRITH, Robert.—" Chemical method of dying different per-" manent colours upon cotton, linnen, woollen, and silk." The Specification contains instructions for making various " mordants" and " prepares," and processes for dyeing and cleansing. The Patentee proposes " to dye a permanent straw or yellow colour " upon cotton, linnen, woollen, and silk," by working them first in gall liquor and then passing them through " aquafortis killed " with block tin." The aquafortis may be " killed" with tin, with or without the addition of " sal amoniac;" or, after the gall process, and before using the tin, the goods may be passed through " a " liquor made from ash wood or bark ground or rasped, or from " American oak wood or bark ground or rasped, or from crab-tree " wood or bark, or from apple-tree wood or bark, or from a " liquor made from woulds, or from shumack, or from two or " more of the above woods or barks, or from all of them mixed " together, according to the shade or fullness of the colour " wanted," after which the goods are to be washed off in " soap " and warm water;" or the tin solution may be added directly the liquor and the dye is made.

" To dye a permanent nankeen colour" the Patentee uses gall liquor, and then " through a liquor made from owler wood or " bark ground or rasped, or mahogany wood or bark, or " slow-tree wood or bark, or walnut-tree wood or bark, or from " elm-tree wood or bark, or from poplar wood or bark ground or " rasped, or from tea, or from any two of these woods or barks, " or tea, or from all of them;" or these substances may be used first, and followed by the galls. The application of the tin solution being, as before described, either alone or mixed with " strong allum water."

" To dye a permanent buff colour," the Patentee uses gall liquor as before, then " through a liquor made from English oak bark, or " English oak wood ground or rasped, or from American oak bark " or wood ground or rasped, or from owler bark or wood ground " or rasped, or from crab-tree bark or wood ground or rasped, " or from apple-tree bark or wood ground or rasped, or from " shumack, or from two or more of them mixed together, according to the shade or fullness of colour wanted; then take " out the goods and add to the liquor aquafortis or spirits of salt " killed with block tin, as before, till I can taste the spirits per-

" fectly in the liquor," and again enter the goods and work them for ten minutes; or the tin solution may be used separately. To be finally washed off in warm water and soap.

" To dye a permanent mud, dove, or drab colour, I take half a " pint of aquafortis and half a pint of clear water, in which I " dissolve one ounce of sal amoniac and mix them together, to " which I add, by degrees, two ounces of silver; then I take of " the gall liquor or tea, prepared as for the other colours, or " diluted with water, according to the fullness of colour I wish to " to dye, twenty parts to one of the above spirits, and mix them " together with a few drops of copperas water or oil of vitriol, " killed with iron and water." The goods are worked in the above liquor, and then rinsed through "strong American pot or " pearl ashes, or lees, or lees made of lime, or lime and ashes " mixed together; after which I wash them well in water and " dry them." Two ounces of " quicksilver" may be substtiuted for the silver. " Or I take half a pint of oil of vitriol, and add to " it half a pint of water, in which I mix, by degrees, one pound " of common salt, and half a pound of manganese," to which is added gall liquor in more or less quantity; also one tenth part of " aquafortis killed with silver," or about a third part when "killed " with quicksilver." " I work the goods through this liquor, " then dry them, after which I rinse them in American pot or " pearl ashes, or lees made from lime, or lime ashes mixed " together, then I wash them well and dry them."

To dye a permanent brown.—The goods being passed through gall liquor, as above, " then I run them through the spirits made " from oil of vitriol, common salt, and manganese, as stated " before; after which I pass them through strong ash lees, and " then through a slender liquor made from the oxygineated muri- " atic acid, diluted from spirits of salts, manganese, and ashes, or " from oil of vitriol, common salt, and manganese; after which " I wash them well through clear water and dry them."

[Printed, 4*d*. See Repertory of Arts, vol. 13, p. 230.]

A.D. 1799, April 30.—N° 2311.

GILLISPIE, William.—"A new and improved method and " process of printing, colouring, or staining linens, calicoes, or " other cloths." This is the application of acids for discharging mordaunts. The piece being padded with mordaunt is dried and then washed off and dried again. The vegetable or other acid is now applied; other mordaunts may at the same time be applied to other parts of the cloth. When aged, the piece is rinsed and dyed. Where the acid was applied the mordaunt is dissolved out, and the cloth there remains white. He clear the whites with bran, or oxygenerated muriatic acid or its compounds.

It is mentioned that acids have been previously used for *resisting* colours.

[Printed, 4*d*. See Repertory of Arts, vol. 11, p. 365.]

A.D. 1799, April 30.—N° 2312.

TENNANT, Charles.—"Preparing the oxygenated muriates "of calcareous earths, strontites, barytes, and magnesia, in a "dry, undissolved, or powdered form," "or in the state of paste, "and for applying such oxygenated muriates of the above earths "(when dissolved in water), to the purposes of bleaching or "removing colours from vegetable or animal substances." The first part of this invention may be "effected merely by bringing "the oxygenated muriatic acid gas into contact with these earths," in form of lumps, pieces, powder, or paste (contained in any vessel fitted for the purpose), or into contact with mixtures of them, with such other bodies in the above forms as do not impede or hinder their attraction for the acid. The above dry oxygenated muriates (bleaching powder) may be supplied to bleachers with "little expense of carriage," and be made by them into solutions of varied strength, for the purpose of bleaching linen, cotton, &c.

[Printed, 3*d*. See Repertory of Arts, vol. 13, p. 1; Engineers' and Mechanics' Encyclopedia, vol. 1, p. 171.]

A.D. 1799, November 21.—N° 2314.

WILKINS, Stephen.—"A composition for a gum to be used "in calico printing." "To half a ton weight of scraps of pelts or "skins, or pieces of rabbit skins, or sheep's trotters, add three "hundred and fifty gallons of water, and boil them together "gently for seven or eight hours, or until it become a strong size, "then draw it off, and when cold weigh it; warm it again, and to "every hundredweight add four gallons of the strongest sweet "wort that can be made from malt, or twenty pounds weight of "sugar, and when incorporated take it off and put in a cask for "use. The substitute for gum is used by calico printers in

" mixing up nearly all kinds of colours, and is better than gum " itself. By using a sixth part only of gum with it, it will " improve the gum and be a saving of about two hundred pounds " per cent.; but without gum of four hundred pounds per cent. It " will improve and preserve the paste so much used by the " printers."

[Printed, 3*d*. See Repertory of Arts, vol. 13, p. 163.]

A.D. 1799, July 17.—N° 2331.

GRATRIX, Samuel.—" A new invented process and method of " dying and staining colours upon cotton, cloth, linen cloth, and " cotton and linen cloth mixed."

" To dye a black upon cotton cloth, linen cloth, and cotton and " linen cloth mixed, I take tar iron liquor of the very best " quality, adding to each gallon thereof three quarters of a pound " of fine flour, and by boiling bring it to the consistency of a thin " paste. I put the liquor or paste above mentioned into the tub " belonging to the machine used in this process (referred to " below)". " The goods intended to be dyed are wound upon " the roller and passed through the liquor or paste above men- " tioned, betwixt the two rollers, thereby completely staining or " dying the whole mass or body of the cloth. I pass them into " a very hot stove or drying house till dry. The goods are then to be dunged at a " scalding heat " and afterwards well washed. They are then to be dyed with " madder," or " logwood," or " su- " mach," or any mixture of them till the shade required is attained. They may be dyed twice over to ensure the colour wanted, or if the shade be " too full or too much upon the red " hue, it will be necessary to give them a little sumach, and then " run them through a liquor made from iron, and owler, or alder " bark; or more flour may be added, or instead of flour I add " glue, or linseed, or gum, or any two or all of them mixed " together."

" To dye olives, bottle greens, purples, browns, cinnamons, or " snuffs " :—" I take common iron liquor, or common iron liquor " with allum dissolved in it, or common iron liquor with " allum and saccharine saturni dissolved therein," according to shade wanted, and thicken the liquor as before; dry and age the goods in a cool room, then dung and wash them thoroughly. They may then be dyed in a liquor made " from madder, log-

"wood, sumach, fustic, Brazil, wolds, gueration bark, peachwood, "or other woods to produce the colour wanted." After which they are passed through warm water, to which has been added a "little allum, copperas, or roman vitrol, or two or more of them "first dissolved in water; I then wash them off in warm water "and dry them."

"To dye crimson, red, or auge, or yellow:"—Red liquor, more or less diluted, is thickened as before, and applied to the cloth in a similar manner. When aged and cleansed as before the goods may be dyed with "a liquor made from cochineal, madder, peach-"wood, Brazil, logwood, wolds, justic, sumack, or any two or "more of them."

The machine used consists of a stout square framing having two rollers, which are caused to press against each other by means of a screw. The piece to be dyed or padded is caused to pass between these rollers, round one of which passes an endless sheet of cloth or hatting, which passes down into a box containing the thickened mordant, round a roller there, then up, bringing with it a supply of mordant, and round a third roller and forward to the first, where it meets the fabric, and, by means of the pressure, fully impregnates it with mordant. The fabric is drawn aside by means of another roller. This machine may be driven by the hand, and has a fly wheel attached to the axle of one of the padding rollers, to ensure uniformity of motion.

[Printed, 5*d*. See Repertory of Arts, vol. 14, p. 301.]

A.D. 1799, September 23.—N° 2342.

CROOKS, John.—"A new method of making soap, and bleach-"ing by means and use of volatile, mineral, and vegetable alkalies, "either by joining them with each other or using the volatile "alkalies by itself, and of killing vermin, and preserving seeds by "those alkalies from birds and vermin." This invention consists, first, in making "soap with volatile alkalies, as substitutes for "the fixt alkalies, vegetable or mineral; in doing so I use vola-"tile alkali either in its unextracted state contained in urine, or in "its extracted state, when distilled from urine or other substances," "such as soot." "I make a ley from these volatile alkalies and "hot unslacked lime." "This ley I add to the common materials "used in making soaps, and particularly in making [my] fish "soap. Soap may be made stronger by using urine, to which

“ lime has been added, instead of water for the ley; and to pre- “ vent smells, or to add scents, the addition of ‘pecu,’ or “ dried spiermint.” “Thyme, bergamot, wormwood, peppermint, “ or other oils, &c.” is proposed. In washing with the above “ soap “unextracted alkali [urine] not made into ley” may be “ added. In preparing the “fish soap” the “oil” may be first separated from the fish, and afterwards the “isinglass or glue,” and then the soap made from the residue at little or no cost.

Secondly, “ I purify green goods from their vegetable oils, whe- “ ther cotton, linen, silk, their yarns or threads, candlewicks, and “ such articles, with “volatile alkalies” obtained from the raw urine of men and beasts, or “soot” by meyns of hot lime.” A boiler being filled with the above leys and heat applied, the steam and volatile alkali pass by means of a pipe into a reservoir or purifier [a kein] containing the goods. The gases which may escape after acting on the goods, are conducted through a pipe, and condensed by means of cold water. The liquor so obtained may be returned to the boiler, “ so that there is a continual rotation of “ purifying the goods, and of extracting, using, recovering, recti- “ fying, and improving the alkali:” or the volatile alkali may be condensed apart, and used for preserving fish for soap making, &c.

Thirdly, the patentee makes “ soap from the bones of the largest “ land and sea animals, and from those vegetable substances which “ contain saponaceous matter, such as potatoes, and even flour or “ rice, though seemingly among the least unctuous of vegetables.” “ This is done by grinding those articles to a powder, and then “ using volatile alkalies with them as above directed.” It is an advantage to add to these soaps a certain proportion of oil. In general these soaps do not lather but wash and bleach well; the rice and fish soap will “ wash in cold sea water.”

Fourthly, “ I introduce gas [chlorine?] into the above volatile “ alkalies, alone or mixed with grey salts, or calcareous substance, “ as a substitute for the gas liquors now in use in bleaching, and “ thereby to supply bleachers with a new portable gas liquor.”

Fifthly, “ I introduce gas [chlorine?] into the hard soaps alone, “ or into hard soaps to which volatile alkali has been added,” and thereby obtain a soap suitable “ for finishing off fine goods in “ bleaching,” &c., as well as for the “common purposes of “ washing.”

Sixthly, “ I distil tar, oil and volatile alkali from any species of “ schystus, and particularly from the sulphurious schystus, in "which there is pyrites, in the known ways in which tar is distilled "from coal." The oil swims to the top and may be drawn off. Oil from "schistus" is preferred to that obtained from "coal," because it contains "heper sulphur." "I use the liquor distilled "in distroying and expelling garden, field, and house vermin, "and in the preserving of sown seeds and plants from being eat "by vermin or birds, and in smearing sheep and other cattle." "Quick lime" will increase its "bad taste & smell and corrosive "quality." The oil may be scummed off the top and made soluble by means of strong caustic volatile alkali, and be returned to the weak alkali which was below, and the whole then mixed with quick lime. "In which combined state I claim a right to the invention "to destroy or expel vermin, and preserve seeds and plants."

[Printed, 8*d*. See Repertory of Arts, vol. 13, p. 81.]

A.D. 1799, December 20.—N° 2365.

LUDLOW, Edmund Edward.—"Intire new or improved play- "ing cards, to be named 'Brilliant new invented knights' cards." "The utility of this invention is, all but aces and court cards, "not requiring to be turned, by having entire new pips to render "each suit perfectly distinct, to remove any mistakes in the turn "of dealing, and to prevent the misplacing of any card in playing, "without any immediate discovery. The particulars of the cards "are intended to be as nearly as possible as follows:—Spades, "hearts, & clubs to be as much reversed as conveniently can be "done, so as to appear as much as possible the same both ways; "and if upon tryal it should be found expedient, the court cards "shall be done in the same manner." The Patentee proposes "also to ornament the various cards, more particularly the aces and court cards, with different devices, such as "Garter, motto, "& date of the Order of the Thistle, the Order of St. Patrick, "the Order of the Bath, the Order of the Garter, &c., with the "lyon and unicorn, and an under motto. The kings are intended "to have sceptres, stars, and garters; the queens their respective "crowns, knotts, and ribbons, to which is to hang their badge; "the knaves' belts and broadswords, the emblems of their orders, "agreeable to the aces of their suits, all of them at top their pro- "per pip, and at the bottom another the very reverse."

[Printed, 3*d*. See Repertory of Arts, vol. 13, p. 145; Rolls Chapel Reports, 6th Report, p. 148.]

A.D. 1800, March 24.—N° 2384.

GLOVER, John.—"A new and improved method for bleaching "linen cloth and other cloths." This invention consists in supplementing the action of quicklime in bleaching by means of the addition, in greater or lesser quantities, as the case may be, of "marl, loam, common soil, whiteing, clay, chalk, fuller's earth, or "any like earth, diffusible or soluble in water;" or "vegetable "ashes," "coal ashes," "mud," "muddy water," "sand," or "stone," "finely pulverized," or any mixture of two or more of them. For the first and second "works" in the ordinary process of bleaching add marl (in preference) to the lime required, in suitable proportions, and buck or boil the goods therein in the usual manner.

[Printed, 4*d.*]

A.D. 1800, March 31.—N° 2385.

BERENGER, Charles Random.—"A new method of printing "and colouring transparencies on silk, cotton, linen, or other wove "manufacture, for carriage and window blinds, skreens, and other "useful and ornamental purposes." This invention consists, first, in printing silk, cotton, linen, &c., with the desired colour (Frankfort black, for instance), in the way as is usual in copperplate printing. The fabric so printed, after being exposed to the air to dry for two or three hours, "is strained on a wooden frame, and some dissolved "isinglass is gently washed, by means of a large brush, all over "the parts which are to be afterwards coloured." The isinglass solution should be in the proportion of one ounce to three pints of water, boiled and strained. When the isinglass on the silk is perfectly dry the transparency is fit for colouring on the front and back. "The brightest oil colours should be used for this purpose, "which are mixed in the same way as those generally used for "painting."

[Printed, 3*d.*]

A.D. 1800, April 28.—N° 2392.

KOOPS, Matthias.—"An invention made by me of extracting "printing and writing ink from printed and written paper, and "converting the paper from which the ink is extracted into pulp, "and making thereof paper fit for writing, printing, and other "purposes." This invention consists, first, in discharging the ink from printed papers. The paper is sorted according to quality, torn into pieces, and passed through the engine, "and divested of " its size by means of hot water." It is then boiled and macerated in water the necessary time, to which "lime water" and "pearlash" are added in proper quantities. It is then drained and thoroughly washed in the washing engine, to which is added, in order to brighten the colour, a sufficient quantity of "solution," made as follows:—"3 lb. of marine salt," and "2 lb. black wad" are incorporated and put in a retort, to which is added "three pints of con- " centrated vitriolic acid." Heat is applied, and the fumes arising are caused to enter a cask and be absorbed "in 150 gallons of soft " water." The writing from "written paper" may be discharged without the aid of the lime and pearlash. "The pulp is then to " be ground, in order to be made into paper."

[Printed, 3*d*. See Repertory of Arts, vol. 14, p. 225; Davies on Patents, p. 244; Rolls Chapel Reports, 6th Report, p. 197.]

A.D. 1800, May 10.—Nº 2400.

WHITTON, John.—"A lead saccharum for the use of callico " printers, and several other useful purposes."

"In any quantity of tar acid, either alone or mixed with any " other suitable acid, or substance, or composition, I dissolve lead, " or white lead, or red lead, or litharge of lead, or any other calx " of lead, or lead in any other state, or any mixture of them, ad " libitum, or till the acid menstruum is fully saturated. Or I " take wood acid or any other empyreumatic acid, or any mixture " of them, or mixed with any other suitable acid, or substance, or " composition, and I proceed to dissolve therein lead or calx of " lead, or lead in any other state or any mixture of them, in the " same manner as above mentioned. I then filter the solution, " and leave it awhile at rest, and then decant and filter it again, " to separate the impurities. Then I bring it to any desired " degree of greater specific gravity, by evaporation; and by evapo- " ration and timely intermissions thereof, the solution will, at " particular periods of the process, form into crystals." "This " article, in each distinct state, is my lead saccharum for the use " of callico printers, which I apply also for making white lead, and " yellow lead, and lead of any other colour, for paint and for " several other useful purposes."

[Printed, 3*d*. See Repertory of Arts, vol. 14, p. 83; and Rolls Chapel Reports, 6th Report, p. 149.]

A.D. 1800, June 20.—N° 2417.

FRYER, Robert, and BENNET, James.—" A new method of " manufacturing, cutting, dressing, dying, and finishing of cloth, " the warp whereof is composed of silk, cotton, woollen, worsted, " or linen yarn, and the weft of sheeps' wool or lambs' wool."

"This invention consists, first, in " carding, roving, and spin- " ning " the wool; second, in the mode of weaving, whereby " the " weft or woof is caused to float over two, three, or more threads " of the warp;" third, in cutting with a knife or machine the weft so floated; fifth, in " singeing " the surface of the fabrics so cut. This operation is performed by " drawing the cloth as quickly " as possible over the singeing plate," which may " be repeated " several times, according to the heat of the singeing plate, and " the judgment of the workman." " All kinds of woollen cloth " manufactured by carding, roving and spinning, weaving and " milling, and raising, either by the hand or by machines, may be " finished after the same process, that is to say, by singeing instead " of cropping or shearing. Sixthly, after the cloth is so finished, " it must be scoured clean in a sud of soap or lye and water, pretty " warm, or a lye made from any other alkali fit for the purpose. " It must then be well boiled a few hours in clean water; then it is " to be taken out and dried, and, if found necessary, drawn over " the singeing plate a second time, and well scoured, as before. " Seventhly, the cloth is then dyed with any colour, at the discre- " tion of the manufacturer. Eighthly, after the cloth is dyed and " dry, it must be well brushed, smoothed, pressed, or cylindered, " as wanted, which finishes the process of manufacturing."

[Printed, 3*d*. See Repertory of Arts, vol. 2 (*second series*), p. 23; Rolls Chapel Reports, 6th Report, p. 198.]

A.D. 1800, July 16.—N° 2424.

SMYTH, Thomas.—" Method of preparing colors, in cakes and " powder, from logwood and other vegetable substances, for dying " or painting." The logwood or other vegetable substance, being reduced into small pieces or shavings, is to be boiled in soft water, at least three times. The liquors so obtained are to be put together and carefully boiled down to the consistence of paste. As it cools it becomes hard, and may be reduced to powder, and is then ready for the purposes of dying or painting.

[Printed 3*d*. See Rolls Chapel Reports, 6th Report, p. 197.]

A.D. 1800, November 15.—N° 2449.

TURNBULL, John, Junior.—"New processes or improve-" ments of processes and apparatus applicable to the bleach-" ing or whitening, and to the purifying, washing, and cleans-" ing of cotton, flax, hemp, silk, and wool," and of goods of " every description made or manufactured of cotton," &c., "and " to other purposes." This invention consists as follows:—The goods are immersed or steeped in alkaline, soapy, or other lye or liquor, and "instead of boiling or bucking them in it, as is the " practice usually followed," "the goods are drawn out upon a " rack over the vessel" "and suffered to drain." The goods are then put into a vessel called the "steaming vat," of sufficient strength and dimensions and of proper shape and material on a false bottom which may be attached to ropes by means of which and with the assistance of a crane the goods may be withdrawn when desired. The goods are then "steamed" by "opening the " communication between the steaming kettle and steaming vat " the former, which contains some water or aqueous solution, being " kept at a proper heat by means of a fire put under it, and the " latter having previously its cover fitted on steam tight." "By this " process the goods can be heated considerably above the boiling " point, a circumstance that adds so much to the dissolving power " of the alkaline, or soapy, or other lye, that the quantity left in " the goods after draining, as before described, is found sufficient " to dissolve and discharge by one steaming as much of the resinous, gummy, or other impurities from the goods under process " as could have been discharged by a long boiling of the goods in " the lye itself." The process of steaming may be repeated if necessary, and the other processes usually adopted in bleaching may follow in the usual manner.

[Printed, 4*d*. See Repertory of Arts, vol. 15, p. 150.]

A.D. 1801, June 20.—N° 2,518.

SENEFELDER, John Aloysius.—"A new method and process " of performing the various branches of the art of printing on " paper, linen, cotton, woollen, and other articles." This invention is here introduced as its application to the printing of textile fabrics was claimed and the process applied at a later period.

He takes a slab of porous limestone and writes or paints on it the design required with an ink of which some fatty substance is an ingredient. He then bites down with weak acid, to the thickness of writing paper, those parts of the stone which have not been written on. The ink used for printing is of a similar fatty character to that employed for the original writing, and is applied by a similar apparatus to that employed by book printers.

The interesting point in this invention is the circumstance that the ink so used in printing attaches itself to the ink written on the stone, but not to the damped stone itself.

He also draws on paper with a fatty ink, or takes an impression off an engraved plate on paper, and transfers the impression to the lime stone.

Full receipts are given for the inks, varnishes, washes, &c.

[Printed, 1*s*. 2*d*.]

A.D. 1801, July 10.—N° 2525.

MEDHURST, George.—" Improvements of certain machines " for washing and wringing of linen, woollen, wool, cotton, silk, " velvet, or any other commodity that requires washing, cleansing, " or scouring." These improvements may consist of a "recep- " tical" or "tub," in which are caused to revolve two rollers, by means of wheels and a handle outside. On these rollers are put two endless nets or cloths, into which is placed the linen to be washed, " and as the rollers are turned round by the wheels the " endless net is turned, and every side of the linen, &c. is suc- " cessively turned towards the presser." "The perforated presses " appear to perform the best with the net." The presser is suspended between the nets in the tub, and to which is given a to-and-fro motion by means of a crank, or otherwise, thereby pressing and squeezing at each stroke the alternate nets containing the linen.

[Printed, 8*d*.]

A.D. 1802, January 16.—N° 2572.

LEWIS, Joseph.—" Certain improvements in the art of dying, " by means of a new method of cooling the cloth and other piece " of goods, (particularly in dying black,) and a new mode of " applying the fire for the purpose of heating the boiler or other " vessels, and which may be also applied to the heating of other " boilers and vessels where heat is required."

This invention consists, first, in the means employed to prevent " heat wrinkles," "and to cool pieces during the process of dyeing, "it being universally allowed that repeated cooling is essential in "the dying of black." "Immediately opposite the roller over "which the cloth turns in the boiler a stage is erected, of a proper "width for the goods intended to be dyed. This stage is so high "that, when covered with lead, tiles, or any other material, the "gutters which are placed under the eaves may be sufficiently "elevated to convey the liquor which drops from the cloth while "turned over it back again into the boiler. At each end of the "stage is a trough, of dimensions sufficient to contain the whole "of the goods intended to be dyed at one time, and which "troughs must discharge the liquor which runs from the cloth "into them into the said gutters." "At each end of the stage a 'roller with a winch or handle is placed, so high above the "troughs as to admit of the troughs holding the whole of the "goods easily; and between the said rollers with winches or "handles other intermediate rollers extend over the width of the "said stage, at about three feet distance from each other. The "goods are then wound on into the trough under that roller (at "one end of the stage) till the whole is out of the boiler; they are "then wound back into the trough at the other end of the stage, "and so on, backwards and forwards, till the cloth is cool."

"Secondly, my mode of applying the fire for the purpose of "heating the boiler, is founded on the idea that the stronger the "draft (that is, the greater the quantity of air that can be made "to pass through the fire), the greater will be the effect of the "fire on the liquor, provided the heat so generated impinges in "the best possible direction against the boiler. To gain this "advantage I place a grate exactly under the centre of the boiler, "proportioned to its size and the expedition with which it is "required to boil. Brickwork is raised about eight inches round "the grate to contain the fuel, and a distance of about four "inches is left between the flat brickwork and that part of the "bottom of the boiler which is larger than the grate." "The whole "of the sides of the boiler are likewise set four inches at bottom, "and three inches at top, from the brickwork which surrounds it "up to the closing, which closing is seven or eight inches below "the top of the boiler." At the "closing" are four flues, made wide at the bottom and tapering up into the form of chimneys of about eight inches diameter each. "By the mode above "described you have nearly a perpendicular draft, and the flame "impinges with an astonishing force against the bottom of the

" boiler, and as it leaves the bottom clasps its sides." This plan of heating, modified to suit the circumstances, may be applied in such cases as brewing.

[Printed, 3*d*. See Repertory of Arts, vol. 1 (*second series*), p. 82.]

A.D. 1802, March 24.—N° 2,597.

ASHWORTH, JAMES.—" A new method of making iron liquor " for the use of dyers and printers." This invention (says the patentee) " I exercise in two several ways depending upon two " distinct principles, as follows:—First, I dissolve in any vegetable " acid the oxyd of any metal easy of solution in such acid, and " between which metallic oxyd and acid there is a less affinity " than there is between the same acid and the oxide of iron, and " I then add iron in a metallic state to the above solution, which " precipitates the metal before dissolved and is taken up into its " place, upon the principle which the chemists called elective attraction." " Secondly, I dissolve in any vegetable acid an oxyd " of iron, and to this solution I add iron in a metallic state, which " is thereby dissolved and forms an iron liquor." " The principle " of this second process differs from that described under the first " head and does not depend upon elective attraction; but I conceive the solution of the metallic iron is effected by its attracting " oxygen from the oxyd of iron previously dissolved, and a compound is by this means also obtained of vegetable acid with " iron oydated to the extent proper for producing good iron " liquor."

[Printed, 3*d*. See Repertory of Arts, vol. 1 (*second series*), p. 333.]

A.D. 1802, April 6.—N° 2605.

LEACH, JOHN.—" A method for the use of madder in the dying " of calicos, linens, and stuffs, whereby a considerable saving is " made in the consumption of that root or drug." This is a process for softening and purifying water by means of heating it only, or boiling it for thirty minutes. This operation renders the water more efficacious for extracting the tint, dye, or colour from madder. " Water being first prepared by heat, as before laid down, may be " repeatedly used in the dying with madder, provided the same be " preserved from impurities, which may be done by keeping the " liquor, after boiling or dying with madder, untill the vegetable " and earthy parts are subsided."

[Printed, 3*d*. See Repertory of Arts, vol. 2 (*second series*), p. 265; and Rolls Chapel Reports, 6th Report, p. 300.]

A.D. 1803, February 28.—N° 2683.

KIRKWOOD, Robert.—" Certain improvements on the copper " plate press." The improvement is in the cylinders which give the pressure; the circumference, more particularly of the upper cylinder or of the lower cylinder, is flattened at one or more parts. In passing the printing plate through, the pressure is taken off at these flattened parts, so that the plate with its table may be returned to the operator without its receiving a second pressure, which generally has the effect of rendering the impression coarse and obscure. Another means of producing the desired effect is to preserve the circular form of the cylinders and raise or suspend the upper cylinder or lower the under one by a lever on each side of the press. When required a movement by clockwork is added, forming part of the press, for the purpose of numbering the impressions.

[Printed, 3*d*. See Repertory of Arts, vol, 3 (*second series*), p. 245.

A.D. 1803, August 3.—N° 2731.

EDWARDS, John.—" Improvements in distilling, rectifying, and " dying." These improvements consist of " instead of distilling " any fluid or other substance under the pressure of the surrounding atmosphere, in the usual way, I do produce a vacuum by " the means hereinafter described in the still or boiler, or other " vessel or vessels, wherein any fluid or other substance is exposed " to heat for the purpose of being distilled, rectified, or in any " manner driven over by evaporation, or wherein the same may be " condensed by subsequent cooling; and I do find that thus " making way for the easy expansion of the volatile parts of the " said fluid or other substance the process is greatly facilitated " with a saving of fuel and of time; and that in all products " which require delicate management of heat, such as spirit to be " rectified, the article is obtained in a purer and cleaner state, and " consequently must be more valuable." This may be effected by connecting in an air-tight manner the worm or condensing pipe with " the receiver or vessel below into which the condensed spirits " or other matter falls, which receiver or vessel must also be air-" tight in every part, and capable of resisting the incumbent pres-" sure of the atmosphere." The vacuum may be maintained in these by the usual method; by connecting them with another vessel in which the air may be blown out by steam, and then condensed by injection, "and drawing off the condensed steam and injection water by a pump or an eduction pipe;" "and I convey off the spirit, whether in the condensed or vaporous state, to the proper receptacles by means of a pump, which also serves to keep up the vacuum or otherwise, in such cases wherein the same may be preferred." The vacuum may be produced also "by means of a pump alone." The "stills, boilers, and other vessels" may be enclosed in "a hollow space properly adapted for the reception and retention of steam conveyed from a boiler, and thereby heated." The steam so employed for heating the stills may afterwards be used in working "a steam engine, or in producing a vacuum, as described, or in any other useful purpose." "In the art of dying, whenever it may be requisite to use particular caution, I do apply my said method of communicating heat by steam; and whenever the goods are required to undergo the process of ebullition or boiling at a less heat than the common boiling heat, I do apply an air-tight cover and do produce a vacuum by one or both of the aforesaid methods, in consequence of which that rapid escape of vapor which constitutes ebullition is made to ensue."

[Printed, 3*d.*]

A.D. 1804, October 3.—N° 2786.

FRITH, Robert.—"An improved method of dying cotton wool, cotton twist, cotton weft, and cotton cloth of a nankeen colour, and of a buff colour." This invention consists in the use, "either conjoined or successive, of an infusion or decoction of galls, mahogany bark, aldar bark, oak bark, elm bark, shumac, and madder, or of any one, two, or more of them; and of a solution of iron, prepared by means of the sulphuric, nitric, muriatic, and acetous acids, or any one or more of them, or by any other acid or acids commonly used for such solutions, or prepared in any other way in which the solution of iron, commonly called iron liquor, is prepared." The Patentee prefers to carry out his invention by the following process:—"After washing the substance to be dyed in hot water, first, I dip it into an infusion or decoction of galls, mahogany bark, alder bark, oak bark, elm bark, shumac, and madder, or of any one, two, or more of them; secondly, I pass it through a solution of iron, prepared as before mentioned; thirdly, I wash it well in warm water;

" fourthly, I pass it through a solution of soap in water, or through " a solution of any of the alkalies, either mild or caustic, in water, " or through lime water; fifthly, I dip it while remaining wet into " a solution of tin, prepared by means of either the nitric acid, or " the muriatic acid, or the nitro-muriatic acid, diluted with " water. After washing the substance so dyed in warm water, " and drying it in the usual way, the operation is complete."

[Printed, 3*d*. See Repertory of Arts, vol. 6 (*second series*), p. 103; Rolls Chapel Reports, 6th Report, p. 203.]

A.D. 1804, December 4.—N° 2796.

GREGSON, MATHEW.—" A method of cleansing feathers for " beds, and hair, wool, down, and other natural covering of birds " and animals from their animal oil, in the most perfect manner, " and in such a way as to render them more healthful, sweet, " and pleasant for use." This invention consists, first, in disposing the said feathers, hair, &c. " thinly, lightly, or openly " within a " chamber " or " receptacle," closed on all sides, and then subjecting the said feathers, &c. to the action of " steam " or of " heated common air," " heated gases," " vapours," or " elastic " fluids;" " and, more particularly, I do use the altered residue or " steam of heated and burned common air which has passed " through or amongst certain bodies in combustion or fuel, which " do not give out any taint or smell, or otherwise injure the good " qualities of the said feathers, &c."

[Printed, 3*d*. See Repertory of Arts, vol. 8 (*second series*), p. 167; Rolls Chapel Reports, 7th Report, p. 190.]

A.D. 1805, January 23.—N° 2813.

JONES, JOHN.—" A liquor for printing and dying of cotton, " linen, or woollen." " Take vinegar, pyrolignous, or wood, " sorrel, tartarous, or any vegetable acid, saturate it with lime or " any other calcarious earth; let it stand till it has subsided, pour " it off clear, heat it over a fire, and put to it as much vitriolic, " sulphic, nitric, or marine salt of lead as will separate the whole " of the oily, bituminous, or extractive parts of matter. When " clear run it off, and put to it as much alum or copperass as will " separate the lime and lead; and thus the printing or dying " liquor is made."

[Printed, 3*d*. See Repertory of Arts, vol. 6 (*second series*), p. 408.]

A.D. 1805, July 19.—N° 2870.

MARSLAND, Peter.—" Improvement in the process of dying
" silk, woollen, worsted, mohair, fur, hair, cotton, and linen,
" or any one or more of them, as well in a manufactured or part
" manufactured as in an unmanufactured or raw state."

" The manner in which the same is to be performed:—The
" articles which are to be dyed must be put into a vessel called a
" receiver, and which must be made perfectly air-tight by fastening
" down the lid or other cover to the aperture, through which the
" articles are put into the receiver. Then, by means of a common
" air pump connected with the receiver, or any other means by
" which a vacuum may be produced in the receiver, the air must
" be extracted from the receiver, and from the articles to be dyed
" contained in it, or as much of such air as can be easily extracted;
" then such of the liquid materials or substances as are commonly
" used in dying the same are to be introduced into the receiver,
" either at the same time or at different times, according to the
" order in which the same are used in the common process of
" dying, care being taken that no air, or as little as possible, be
" admitted to the receiver. The articles to be dyed are then to
" remain in such liquid materials or substances as are contained
" in the receiver, until they are sufficiently saturated or impreg-
" nated therewith. A lid, grating, bars of wood, or other solid
" substance, must be placed within the receiver, at the distance of a
" few inches from the top thereof, to prevent the articles which
" are to be dyed from rising above the surface."

[Printed, 3*d*. See Repertory of Arts, vol. 7 (*second series*), p. 408; Rolls Chapel Reports, 7th Report, p. 190.]

A.D. 1805, July 29.—N° 2872.

MAUDSLAY, Henry.—"A press upon an improved construction
" for printing of calicoes and various other articles."

The block or printing surface is fixed to the end of a swinging frame, and is caused by excentric wheels to oscillate under and from the printing bowl, which is protected by a travelling blanket.

[Printed, 6*d*. See Repertory of Arts, vol. 9 (*second series*), p. 382; Rolls Chapel Reports, 7th Report, p. 190.]

A.D. 1805, September 27.—N° 2880.

NYREN, John.—" A method of printing fancy patterns on silk
" and cotton lace nets, instead of tambouring or working them in

" colours." Print the net or lace pinned on a table covered with a blanket with colour, thickened with gum dragon. Use a wooden frame to keep down the lace or net whilst the block is lifted off. The colours are to be cleared and fixed by a gentle steam. The pitch pins to have round tops to prevent their penetrating or going through the lace or net.

[Printed, 3*d*. See Rolls Chapel Reports, 7th Report, p. 190.]

A.D. 1806, March 8.—N° 2913.

WHYTOCK, Patrick.—" An improvement in the manufacture " of piece goods composed of cotton, of flax, or of hemp, or of " any mixture or mixtures of two or more of those articles, by " which such goods will resist the rotting action of wet or moisture " much better than similar fabrics manufactured by the " methods in common use." This invention consists in the application to fabrics and to other articles mentioned, such as sails, cordage, ropes, &c., for the above purpose, of the " oxides, calces, " or solutions of quicksilver " or of " copper." The patentee prefers to use the " red oxide " of quicksilver, which may be mixed with the starch used by the weaver for smoothing his threads, in the proportion of 8 or 10 ounces to the cwt. of cloth, or may be mixed with tar and applied to the yarns. The oxide of quicksilver being insoluble does not wash away as would a soluble salt, and preserves the article to which it is applied " from mouldiness or " mildew."

[Printed, 3*d*.]

A.D. 1806, March 12.—N° 2916.

JACKSON, Edward, DAMPIER, Edward, and SHACKLETON, Thomas.—" Machinery for rasping, grating, or " reducing into small parts or powder, such woods, drugs, and " other substances, for the use of dyers and others, as are " not easily to be pulverized by mere percussion." I construct " a large wheel or flat surface of iron or other metal, or of " any other fit material for the purposes herein-after mentioned, " and affix the same to a vertical [horizontal in the drawing] " shaft or a bar, which is driven round by the machinery and " powers commonly used for manufacturing works. Upon the " face of the wheel I attach, by screws, keys, bolts, or any other " well-known means, certain cutters or raspers, having their edges

" or faces toothed and directed upwards, each of which is fixed so " that its length shall be directed towards the shaft, either pre- " cisely or with such an obliquity as that the line of the length of " each rasper shall everywhere cross the circles described by the " motion of its teeth; and close to each cutter or rasper there is " a perforation or large hole quite through the face of the wheel " for the purpose of permitting the rasped wood or other material " to fall through. In the use and application of this machinery " the pieces of wood, drugs, or other substances intended to be " rasped, grated, or reduced into small parts or powder, are placed " and secured upon the face of the said wheel, which, by its rota- " tion, causes the teeth of the cutters to act upon the same, and " to cut off portions or raspings of the same, which fall through " into a proper receptacle. And I do further declare that the " face of the said wheel may be made bevilling inwards or out- " wards, and will admit of various forms, dimensions, and velo- " cities of motion, and also that by contrivances well-known to " workmen it is easily practicable either to fix all the cutters upon " the wheel at once, and fasten them there by one key or mode of " connection or otherwise that each cutter may be separately at- " tached and taken out, when needful, independently of the " others."

[Printed, 6*d*. See Repertory of Arts, vol. 15 (*second series*), p. 221; Rolls Chapel Reports, 7th Report, p. 101.]

A.D. 1806, August 30.—N° 2962.

PEARSON, Thomas.—" Improvements in a machine or machi- " nery for the purpose of cleansing, seasoning, and dressing of " feathers and other articles." The " feathers," flocks," &c. are in the first place put into a hollow cylinder, which may be made of wood and lined with tin; the cylinder is caused to revolve in a heated stove at a proper heat and for a sufficient length of time. " Proper apertures of communication shall be allowed for the " heated air to have access to the feathers, and for moisture, " vapours, and other exhalations to escape therefrom." The feathers, &c. may then be placed on an endless web and caused to pass between two " fluted " or " plain " rollers," from which they " pass to a cylinder faced or set with pins or very coarse teeth " externally, which move by the rotation of the said cylinder, so " as to pass between other pins fixed in the concave curved sur- " face of a semi-cylindrical cap or cover." The feathers may be passed repeatedly through such an apparatus, or until they are " rendered extremely light, open, and separate from each other." " They are then allowed to fall into a place which constitutes the " commencement of a long horizontal channel or passage, closed " on all sides except at the two ends," and having the bottom divided into successive compartments. " By means of a winnowing " fan or bellows," &c., or by the "natural current of the open " air," a stream of air is admitted into the channel, "which, by " its action against the said feathers during their fall," drives them along the said channel to different distances and into different compartments. "The loosest or lightest feathers will fly " farthest, and drop into the remotest compartments."

[Printed, 3*d*. See Rolls Chapel Reports, 7th Report, p. 196.]

A.A. 1806, October 7.—N° 2975.

JONES, Archibald, and JONES, James.—"A method of dis" charging colours from shawls and other dyed silks, and silk and " worsted of every description, or such part or parts thereof as " may be required for the purpose of introducing, by printing or " staining, various patterns on such discharges or otherwise." " Take one pint of aquafortis or nitricfortis, more or less, and " add thereto one pint of water, more or less, according to the " pattern to be printed, thickened with flour or any other proper " substance, to such a consistency as may be proper for the blocks " with which they are to be printed; after being printed, put " them into a steam or steaming box, and continue the articles " therein until the discharge is brought out, which, in general, is " produced in about five minutes; then take such goods out of " the steam, rince and dry them, and they are finished. In some " instances, where the goods do not require it, I do without " steam."

[Printed, 3*d*. See Repertory of Arts, vol. 14 (*second series*), p. 85; and Rolls Chapel Reports, 7th Report, p. 193.]

A.D. 1806, October 15.—N° 2977.

BRAMAH, Joseph.—"A certain machine whereby valuable " improvements in the art of printing will be obtained." To construct this machine, " I take an axletree or cylindrical roller,

" made of iron, brass, or other metal, or wood; and whatever may " be its required length, according to the scale of printing, or its " diameter, it must be turned perfectly true, smooth, and parallel " from end to end, with pivots or other preparations for mounting " it on a stationed frame of wood or other materials; this done, " I then take twenty-six wheels or rings of metal, wood, or other " materials suitable to the intended work, and which wheels or " rings must be turned or otherwise fitted on their sides, so as to " closely fit side by side as true and close as possible, so that when " a hole is turned in the centre of each, to exactly fit the axis or " cylindrical roller above described; the whole twenty-six wheels " must be put thereon, and confined by a flanch at each end, so " as then to represent a large roller composed of rings or wheels, " and which rings and wheels may (when the apparatus is to be " used for plate printing) be turned on the periphery or external " surface perfectly cylindrical, smooth, and true, from one end to " the other, as directed for the axis; the whole will then appear " one solid roller or cylinder, without distinguishing the wheels or " rings of which the roller is composed." By moving these " wheels past each other, thereby varying the positions of the " letters or ornaments which are to be engraved or placed thereon, " I can vary patterns endlessly and print them by the same " machine." When a roller for this purpose is completed the impression is taken off in the same way "as is performed by the " rolling press used by those who print from copper plates."

The Patentee's "method of perpetual inking or putting on " the colours" consists of a box without a bottom to contain the colours, which is fitted tightly on the periphery of the printing roller. " On the leaving side of this inking or colour box is fixed " what I call a wiper," made of proper materials, which "doc- " tors" the roller of any colour which may have escaped from the colour box.

When stripes of various colours are intended to be printed, a corresponding number of fluid tight partitions must be introduced into the colour box, so as to fall with their thickness exactly equally divided across the joints between one wheel and its neighbour. " When I construct this apparatus on the flat principle, " the type, mould, or print will be composed of an equal number " of sliders, placed by the side of each other with close joints."

[Printed, 3*d*. See Repertory of Arts, vol. 10 (*second series*), p. 329.]

A.D. 1807, April 11.—N° 3031.

PATY, Thomas.—"Spinning, dying, weaving, and manufacturing East India sunn hemp into carpets and carpet rugs." "The sunn hemp must be taken from the bale as imported from "India, and dressed into three sorts on a cagg and cleaver. The "first or longest sort is used for the purpose of being made "or spun into yarn for the chain or warp of the carpets and "carpet rugs. The second is in like manner spun into yarn, "which is dyed, and used for the pile of the carpets or carpet "rugs. The third sort is spun into a coarser yarn for the shoot "or weft.

"The yarn spun of the sunn hemp, for the purpose of being "employed for the pile of the carpets and carpet rugs, is dyed in "the skein various colours, such as blue, green, yellow, black, "brown, purple, buff, red, mulberry, marroon, woad, green, and "the various shades of these and other colours; and I particularly "claim as my invention the application of the art of dying "towards imparting the said colours and shades of colours to the "sunn hemp of India, for which purpose I use the following "drugs, dyeing stuffs, and materials, viz., cochineal, argol, old "and young fustic, peachwood, sumach, indigo, orchal, solution "of tin, chamber lye, alum, oil of vitriol, and copperas. The "materials having been thus properly spun, dyed, and prepared, "they are made into carpets or carpet rugs in a loom," after the manner described in the Specification.

[Printed, 3*d*. See Repertory of Arts, vol. 11 (*second series*), p. 11; Rolls Chapel Reports, 7th Report, p. 196.]

A.D. 1807, April 21.—N° 3035.

SHOTWELL, William.—"Machines with improvements upon "machines for the purpose of bleaching, washing, and cleansing "linen and every other article that can be done by hand, and "which are applicable to divers other useful purposes." The machine for washing first described consists of an oblong box, which may be covered in with lids. A suitable compressor or washing implement is fixed inside, which may be propelled backwards and forwards by means of a lever. The foul linen is placed on each side of the compressor. The water used may be heated by steam, or it may be heated by causing it to flow through the pipe conducting it from the reservoir, part of which is caused to pass through a fire placed between the reservoir and washing machine. The machine described secondly, consists of a barrel or circular vessel, like a churn; an axis is placed through its centre, and it is caused to rotate by means of a handle or otherwise. To the axis are attached ribs of wood or pegs of wood, which assist, while the machine rotates, in agitating and dashing the liquors and linen under operation. The steam may be admitted through one of the axes, and the excess allowed to pass out by the other. The Patentee further describes his mode of applying "friction rollers" to mill machinery, &c., or wherever the diminution of friction is desirable.

[Printed, 7*d*. See Repertory of Arts, vol. 11 (*second series*), p. 89; Rolls Chapel Reports, 7th Report, p. 104.]

A.D. 1808, March 14.—N° 3117.

MAUDSLAY, Henry.—"This invention consists in a method " of doctoring or wiping off the superfluous colour from engraved " rollers or cylinders for printing callico or any other substance." " My manner of performing the same is by causing a plain roller " or cylinder to be placed immediately above and in contact with " the engraved roller, both of which must be perfectly true, so " that the line of contact between the two shall be colour-tight, or " that the colour, being put on that part of the engraved roller " about to pass the line of contact, shall be carried up into the " acute angle formed by the peripherys of the two rollers, and " there pressed into the engraved line on the lower roller, which " will pass the line of contact well filled with colour, while the " body of colour is continually driven back by the upper or plain " roller."

[Printed, 8*d*. See Rolls Chapel Reports, 7th Report, p. 200.]

A.D. 1808, May 17.—N° 3133.

GOULD, Chester.—"Improvements in the construction of a " machine for washing or cleansing linen and various other articles." These improvements consist of a box, of proper shape and dimensions, to hold the suds or washing liquors. In this box is placed a "roller or drum wheel," and "when cloaths are to be washed by " this machine they are first soaped and placed on a cloath of con- " venient length, usually about three yards long, then wound " about the drum wheel, the cistern being filled with a proper

" quantity of water. The cover is then brought down on the " cistern and secured by proper hooks and eyes, or otherwise." A fluted roller, connected "with the cover, is thus made to rest on " the drum wheel," loaded with the cloths. "The working handle, " being turned about, moves the [fluted] roller," and thereby " turns the drum, so that the cloaths are constantly passing " between the two," and thus get scoured or washed. The fluted roller may be variously adjusted by means of springs and screws, to compensate for "unevenessess which may happen in the cloaths " about the drum," "or for the different quantities of cloaths " which may be put on the drum." "The drum wheel is made of " such dimensions that when placed within the box there will be a " space on each side, and at the bottom, of about two inches. It " has a number of holes in each end, to admit the lather inside; " and the laths or slips composing the circumference are at such a " distance from each other as to admit the water to pass freely."

[Printed, 5*d*. See Rolls Chapel Report, 7th Report, p. 201.]

A.D. 1808, October 31.—N° 3175.

BARRATT, Zachariah.—"A machine for washing linen and " cotton cloths and other similar things, to which may be affixed " or omitted, at pleasure, a contrivance for pressing the water from " them, now commonly done by wringing." "I construct a wooden " trough, of a convenient size for one person to stand at, with an " inclined bottom, and I make an uneven surface on the lower " part of the inside of the trough by forming grooves or projections thereon, taking care to leave no sharp angles that may " catch and thereby damage the things put into the machine to be " washed; and at certain convenient distances, say about an inch " asunder, I hollow out the ribs of the grooves, so as to give them " a wavy appearance; and into these hollows I sometimes introduce and fasten small pieces of buff or other leather, or other " elastic and suitable substance, of about two inches long, and of " about an inch wide, which, in the operation of washing, are " presumed to act similarly to the human fingers." "On the " inside of the trough, and parallel with its ends, nearly about the " top, I fix on centres a roller either partly or entirely covered with " cork, leather, or some soft substance, to prevent noise in the " operation of washing, which operation is performed by a person " pressing the cloaths in the trough with a loose board, called an

“ agitator, the under side of which is supported by and moves on “ the roller above mentioned.” This agitator is constructed of “ one or more pieces of board, of about two feet six inches in “ length, framed together so as to form a flat surface, nearly of “ the width of the interior of the trough, having two holes or “ spaces cut out on the upper end for the operator's hands. The “ lower end may be covered with leather, cork, &c.” The apparatus for “ pressing out the water ” “ is merely a box or tub, into “ which the wet things may be put, and the water pressed out by “ a piece of wood, of the size nearly of the interior of the box, “ attached to the end of a screw [or lever] fixed in a frame.”

[Printed, 3d. See Repertory of Arts, vol. 14 (*second series*), p. 153; Rolls Rolls Chapel Reports, 7th Report, p. 107.]

A.D. 1809, February 21.—N° 3208.

ILETT, Joseph.—“ A method of producing fast greens on cot- “ tons and various other articles.” A solution of tin is first prepared by mixing gradually with twelve quarts of “ muriatic acid ” one quart of “ nitrous acid,” and then adding by small quantities at a time “ grain tin, feathered or in shavings, till the acid will not “ dissolve any more,” “ and let it boil over a slow fire till about “ two-thirds are evaporated : ” other solutions of tin or lead may “ be used,” or any other metal “ that will go through the processes “ herein-after mentioned.” A solution of potash or soda is also prepared “ by adding one pound of fresh slacked lime, one pound “ of potash or pearlash, or soda to one gallon of water,” and boiling “ for one hour in an iron vessel.”

The preparation of indigo employed consists in grinding “ nine “ pounds of Spanish or best East India indigo, and half a pound “ of orange orpiment (or without the orpiment) in four quarts of “ water; then take three pounds of gum Senegall and dissolve it “ in four quarts of water, let it be well mixed with the indigo, “ then grind the whole in the usual way.” To two gallons of the indigo prepared as above, is added gradually one gallon of the evaporated or neutralised solution of tin, to be well stirred during mixing, and it will then be fit for use. The tin solution may be neutralized by adding the above caustic liquor so long as no tin is precipitated.

“ After being printed (in the usual way) the goods are to be “ dipped in the usual way of dipping China blues, but they must “ not be allowed to drain but must be moved from one back or vat

" to the other as quick as possible," then to be cleansed and scoured as usual, "then to be well washed in the usual method of goods " for raising in decoctions of weld and other yellow colouring " drugs, then in the usual way to be brauned or bleached till they " become white."

[Printed, 3*d*. See Repertory of Arts, vol. 15 (*second series*), p. 75; Rolls Chapel Reports, 7th Report, p. 202.]

A.D. 1809, March 20.—Nº 3219.

VALENTINE, CHARLES.—" A new mode of ornamenting and " painting all kinds of japanned and varnished wares of metal, " paper, or any other compositions and various other articles." This invention consists, firstly, in the mode of producing a " painted " or gilded effect of a landscape, figure, &c.," " on the surface of " any painted, varnished, or gilded body." Representations in four colours may be obtained thus:—Four plates being suitably engraved and supplied with proper colours are successively impressed on a sheet " of fine fan, tissue, or other soft paper," previously " prepared with gum arabic, isinglass, or any other glutinous body dissolved in " soft water; " the impression must then be suffered to dry in the air for the space of a week, or till the shades are perfectly dry, then " pencil in the whole of the shadows " from outline to outline," and let the whole harden in the air for the space of a day or two. The " impression or painting " so obtained is then applied to the surface of wood, paper, &c., previously prepared with " a thin coat of copal varnish," and only partially dried, and gently press it down with a sponge well moistened with warm water till the whole is evenly laid. In a few minutes the gum will be sufficiently dissolved and may be washed away with the paper, leaving the " finished painting of four " shades." Impressions may be made from " blocks " on the prepared fan paper, and transferred, as before described, to the desired surface. Various colours and gilding may be transferred by the above means.

[Printed, 3*d*. See Repertory of Arts, vol. 16 (*second series*), p. 323; Rolls Chapel Reports, 7th Report, p. 108.]

A.D. 1810, February 1.—Nº 3297.

DE HEINE, AUGUSTUS FREDERICK. — " Improvements on " printing and stamping presses." These improvements consist " in applying two sectors, or a sector and cylinder, or a sector and

" roller, to move one against the other by a single or compound " lever, for my power, instead of applying a screw." In the centre of the head of the piston, under which is the plattin or die, is a hole in which a spindle moves, and on which are two opposite sectors. Attached to the moveable spindle is a single lever; by bringing the lever from one side to the other, "the piston will be " depressed, as in the common screw, with this difference, that as " the descent of the piston decreases in velocity the power must " increase in the same proportion in the screw. This motion may " be reversed by putting the opposite sectors at the top of the " piston, and the cylinder or roller on the moving spindle. The " sectors, and the parts which come in contact with them, must " be made of iron, steel, brass, &c.; and the sweep of the sector, " and the diameter of the moveable spindle, are made as circum- " stances require. This refers to a mode of setting down a die " or platten by means of cams or inclined planes."

[Printed, 5*d*. See Repertory of Arts, vol. 16 (*second series*), p. 321; Rolls Chapel Reports, 7th Report, p. 110.]

A.D. 1810, April 6.—N° 3322.

RIDGWAY, JONATHAN.—"An improved method of preparing " rollers and blocks now used for calico printing."

A tinned iron cylinder, or an iron axle, has lead cast or soldered on its surface to the required thickness. Types or shapes are soldered or pinned on to the lead. The same process is applied to blocks. A roller so made will not warp, as if made of wood, and will be lighter than if made wholly of lead. The types or figures may be drawn out of the lead and replaced by new figures without loosing the lead from its centre or cylinder.

[Printed, 6*d*.]

A.D. 1810, October 1.—N° 3385.

DYER, JOSEPH C.—"Improvements in the construction and " method of using plates and presses, and for combining various " species of work in the same plate for the kind of printing " usually called copperplate printing; designed for the objects of " detecting counterfeits, for multiplying impression, and saving " labor." These improvements, being the communication of a foreigner, consist, first, in using plates for engraving on, made of steel, of iron of the most uniform texture, or of steel decarbonated or converted into iron, instead of copper. "And after the " workmanship of any of the said plates shall have been com- " pleted, I do then convert the same on the surface thereof " into steel by the method called cementation or case-hardening; " and I do then render them hard by immersion, when red hot, " into water," "and which may be effected by the various well- " known means of carbonating steel, and cementation or case- " hardening." "Plates, thus constructed, are what I call " 'Perkin's steriographic steel plates,' one of which will serve to " give as many impressions as would wear out a great number of " copper plates." "I also cause holes or mortices to be made " through them (such plates) in such place or places, and of such " sizes and figures, as the parts or portions of the impressions re- " quired to be changed may determine, and in these mortises I " place blocks or moveable pieces after these shall have been en- " graved, and accurately fit and secure them therein, so that their " engraved faces shall be evenly disposed and form a plane with " the face of the plate." These removeable blocks are particularly calculated to contain the dates, numbers, &c. of bank notes.

Secondly, consists in arranging plates together, and engraving them with various lines, or irregular chance work, thereby producing "Perkin's check-plate," in order to render the counterfeiting of bank notes and other printed documents more difficult.

Thirdly, consists in "engraving or marking with lines or irregular " chance work upon blocks or pieces of steel fixed together so as " to form one plane surface, and of afterwards separating the " same in order to form the parts of a print or impression so " capable of checking with each other; and I do make and use " the said parts as punches or impressing instruments for making " the like lines, &c., in a reverse manner."

Fourthly, consists in producing the engravings, marks, or designs aforesaid by the well-known methods. "And I do also " produce imitations of block work, and multiply the same en- " gravings upon metallic plates by means of hard steel cylinders, " which I call indenting cylinders, having marks, impressions, or " engravings upon the circular face thereof, which I do transfer to " the face of the plate itself, by causing the said cylinders to " revolve on and move backwards and forwards over the surface " of the plate under a powerful pressure, by which means the " figures, letters, and block-work on the cylinders will be indented " or impressed on the plates, which may be made of copper or

" any other fit metal." "The indenting cylinders I generally " make about one inch long and two inches in diameter at their " indenting surface."

Fifthly, consists in an improvement in the table or board of the common press, " by forming therein a cell containing a metallic " box for the purpose of placing therein a heater;" "also in a " cylindrical inker, which I use instead of a common dauber or " rubber, as they are called, consisting of a sufficient number of " circular pieces of cloth or felt, accurately of the same size, " which are put upon an axis and confined together with a cylin- " drical piece at each end closed against them, by being screwed " upon the axis, or by any other fit method." And in order that this inker may be turned and rolled more easily, "the handles are " included within cases of tin or other fit material, which allow " the said handles to turn freely therein."

[Printed, 7*d*. See Repertory of Arts, vol. 19 (*second series*), p. 257; Rolls Chapel Reports, 8th Report, p. 82.]

A.D. 1811, March 4.—N° 3401.

SAVAGE, EDWARD.—" A machine for washing and bleaching of " linen and other articles, and for cooking, by means of steam, " with a roaster or hot oven and warm closet attached, all heated " by the same fire." This invention consists in a compact arrangement of boilers, ovens, steamers, and heating chambers worked all by one fire, to be used for the purposes of cooking, and of washing or cleansing of linen, &c. The Patentee does not claim any particular shape of vessels, the invention therefore consists in the convenient placing of various ovens, steamers, and vessels, with suitable valves and taps, doors, ventilators, &c., over and at the sides of a fire which will simultaneously roast, boil, and steam; or the vessels may be used for boiling and steaming linen. When the fire produces more steam than is required the excess may be " conveyed through a condenser and produce distilled water." The Patentee states that meat, fish, fowls, or vegetables are cooked by steam in " a much better manner and in the same length of " time as by boiling water."

When this apparatus is used for cleaning linen, the cloths are wrung out of the dirty suds and laid on a rack in the "steamer," where they are steamed for a sufficient length of time, fresh suds being poured over them as often as required, and the dirty liquor drawn off.

[Printed, 6*d*. See Rolls Chapel Reports, 7th Report, p. 111.]

A.D. 1811, March 26.—N° 3418.

BILL, Robert.—"Invention or apparatus to facilitate the opera-"tion of washing cloaths and other process necessary in family "and other establishments."

This invention consists, first, of a boiler and "steamer," or "steamers" placed over to be used for the purpose of cooking, as well as "to aid in the operation of washing clothes."

The boiler may be of any suitable dimensions, and of any depth, but in general eight inches will answer best. "Round the exterior "edge I solder or otherwise secure to it a water groove two inches "deep." "A steaming vessel (of any fit metal) must then be "made adapted to the boiler." "The bottom of the steamer rests "on the top of the boiler, and a projecting piece fits into the "water groove of the boiler," "so that when the groove is filled "with water no steam can escape, but through certain openings "in the bottom of the steamer vessel." On each of these openings is soldered a tube projecting about two inches long, so that the liquor which may be in the steamer cannot return back to the boiler. The steamer may be divided into compartments as desired. "To the end of the steamer I attach a metallic box," on the top of which "holes are made to receive saucepans fitted tight into "them." For washing, the cloathes, soaked in "lixivium of "alkali," or "soap," are placed on wooden racks in the steamer and strained for a sufficient length of time.

Secondly, in a "roasting apparatus" by means of hot air.

[Printed, *4d.* See Repertory of Arts, vol. 22 (*second series*), p. 1; Rolls Chapel Reports, p. 85.]

A.D. 1811, September 23.—N° 3491.

FOTHERGILL, William.—"A new method of making copper "rollers for printing," consisting in producing them solid from their centre or core to their surface, from blocks or ingots of copper, instead of making them of flat plates of copper which have been turned and their edges soldered. The Patentee says, "I cast, from melted copper in wrought-iron moulds, blocks or "ingots of copper nearly square. These I heat in a furnace until "red-hot, when, by means of cast-iron rollers having grooves in "them worked by water-wheels, or other convenient and sufficient "power, I draw out or fashion these blocks or ingots into cylin-

" drical shapes. Afterwards the roller is compressed, hardened, and made perfectly true by means of an iron forge hammer with a polished groove in its head of the size and diameter of the intended roller to fall on an iron anvil having a similar groove on its face. The roller is completed by being bored by the known method of boring.

[Printed, 3d. See Repertory of Arts, vol. 20 (*second series*), p. 195; and Rolls Chapel Reports, 7th Report, p. 112.]

A.D. 1813, January 15, Nº 3639.

BUSH, Mathew.—" Improvements on a machine for printing " calicoes." This is a combination of copper-plate printing and circular block printing. After the cloth is printed in one colour by the flat press, it passes on with the blanket, and is again printed in other colours by two or more circular faced blocks, which revolve, and have colour furnished to them by revolving sieves in colour boxes. The plate and blocks are worked in unison by intermediate wheels. In addition, it is suggested that a man placed above with a block extending across the piece may put on another after colour, a platform being fixed within the endless web, in order to bear the pressure of the block.

[Printed, 9d. See Repertory of Arts, vol. 39 (*second series*), p. 328; and Rolls Chapel Reports, 8th Report, p. 95.]

A.D. 1813, January 15.—Nº 3641.

CAWKWELL, Richard.—" A machine for washing, cleansing, " and scouring linen, woollen goods, and other articles." This apparatus consists " of three rollers made of birch or other wood, " and fixed to a frame placed over a portable copper boiler, with " a wrought-iron flue fastened underneath, containing a fire " pot and grate [with a chimney attached]." The fire heats the liquor contained in the boiler above, and over the boiler are placed three parallel rollers in contact with each other, the centre one of which is slightly higher than the other two, and is turned by a handle. The linen to be washed, after being duly steeped, is passed and repassed between the rollers till sufficiently cleansed. The pressure of the centre roller upon the other two may be increased by the pressure of the foot on a treddle which is in connection with two levers bearing on its axis. This apparatus being, as it were, self-continued, may be used out of doors.

[Printed, 6d. See Rolls Chapel Reports, 8th Report, p. 97.]

A.D. 1813, March 3.—N° 3654.

THOMSON, James.—"A new method of producing patterns on "cloth previously dyed Turkey red, and made of cotton, or linen, "or both." This is the celebrated patent for discharging the colour from Turkey red cloth by means of an acid and a solution of bleaching powder. The Patentee claims the use of all acids, but recommends a mixture of vinegar and tartaric acid; or a mixture of lime juice, crystallized citric acid, and supersulphate of potash. The mixture is thickened with starch or flour. The Turkey red cloth is printed with this mixture, and when dry is hooked on a frame and dipped for several minutes into a solution of bleaching powder with the excess of lime contained in a large stone cistern.

[Printed, 4*d*. See Repertory of Arts, vol. 23 (*second series*), p. 193; and Rolls Chapel Reports, 8th Report, p. 99.]

A.D. 1813, July 14.—N° 3718.

CLARK, John.—"A method for making or constructing beds, "pillows, hammocks, cushions, and other articles of the like "kind." This invention chiefly relates to making "cases" for beds, &c., of "india-rubber," air proof cloth, and filling said cases with air instead of "down, feathers, or other materials." [See Abridgments, Air and Water Proofing.]

The Patentee avails himself also of the aglutinous property of such coating of india-rubber to ornament such "cases" by gilding with "leaf gold," "merely by laying the sheets of leaf gold on "it and greatly pressing them down."

[Printed, 3*d*. Repertory of Arts, vol. 24 (*second series*), p. 157; Rolls Chapel Reports, 8th Report, p. 97.]

A.D. 1813, November 29.—N° 3762.

DE JONGH, Maurice.—"An improvement or improvements "in the method of manufacturing or preparing madder roots." The first part of the invention consists in adapting to the bed of the ordinary grinding mill sliding pieces with perforated holes to allow the fine part to fall through into drawers. This invention consists, secondly, in the application of a machine which is called a gin for removing the cuticle of the madder together with the dirt. A wooden cylinder placed horizontally, covered with iron spikes, is caused to revolve rapidly within another cylinder perforated with numerous holes; and between these cylinders is placed the madder, a charge being about 56 lbs.

It is recommended that the madder should be dried at a temperature from 80° to 120° F. When ground it is to be sifted through sieves of cloth of various degrees of fineness. The different qualities so obtained are variously called mull, cameen, umber, or crop madders.

[Printed, 4*d*. See Repertory of Arts, vol. 26 (*second series*), p. 328, also vol. 45 (*second series*), p. 70; and Rolls Chapel Reports, 8th Report, p. 101.]

A.D. 1813, December 9.—N° 3766.

WRIGHT, THOMAS.—"An improved method of making a "composition or mixture for dyeing scarlet and other colours." The mixture is composed of 26 parts lac dye, 40 parts lac spirit or solution of tin, 26 parts cream of tartar or argol, 1 part turmeric, 2 parts cochineal, 4 parts extract of safflower, and about 1 part sulphuric acid. For purple, violet, and lilac shades add a solution of indigo, according to the depth of shade required.

[Printed, 3*d*. See Repertory of Arts, vol. 25 (*second series*), p. 203; and Rolls Chapel Reports, 8th Report, p. 102.]

A.D. 1814, February 8.—N° 3776.

DUFFY, John, Junior.—"A new method of producing patterns "on cloths made of calico, or linen, or both, by preserving or de"fending mordants or colours, applied thereto, from injury, when "it is required to pass such mordants or colours through solu"tions of acids, of acid salts, of metallic salts, or of combinations "of the oxymuriatic acid." The usual mordants or colours having been applied to the cloth in the ordinary way, a composition of waxy, resinous, fatty, or oily substances, rendered fluid by heat, is printed on it. The cloth is then immersed in a solution of known acids, acid salts, metallic salts, or oxymuriates, of such strength as will in a reasonable time dissolve the mordant or destroy the colour at those parts where the cloth has not been protected by the waxy composition.

[Printed, 4*d*. Repertory of Arts, vol. 26 (*second series*), p. 11.]

A.D. 1814, February 8.—N° 3777.

HARRIS Timothy.—"A machine or machines for ploughing, "laying on colours called grounds, flocking and pressing so

" as to produce an even face upon paper, silk, linen, woollen, " leather, cotton, and various other articles." The machine for " ploughing" is an apparatus for cutting paper. The machine for "laying on colours called grounds," consists of a "semi-circu-" lar shaped colour box containing the colour, in which a brush " revolves, having eight branches or ramifications radiating from " its centre, and is moved on its axis by a wheel and handle, and " by this brush the colour is first brought in contact with the " paper, &c., as it leaves the roller or wire. The paper, &c. " in its progress receives an additional brushing by the pendant " brush and a vertically revolving brush, to which latter brush " motion is given by turning the handle, and which contributes " to spread the colour evenly or regularly on the surface of the " paper, &c." A carrier line is attached at one end to the paper, and at the other passes over a pulley, and is wound on a roller. The paper is thereby drawn along the board as fast as it is coloured or grounded. The "printing machine" described consists of a block which is caused to slide from the sieve to the impressing table alternately. "The tearing cloth is first com-" pletely smeared or covered with colour, then the block on which " the intended figures are cut (having been previously screwed to " a board which is made accurately to fit the sliding frame) is let " fall into this frame, and rests on the springs; then the block is " brought to press upon it with the lever until the printing block " below is brought in contact with every part of the tearing cloth, " so as to receive the colour from it;" it is then released from this pressure by permitting the lever to rise, which it does by means of a weight attached to a line; and in order to prevent the rising of the tearing-cloth when the block, &c. rises, a flap is fastened to the outside of the frame, which flap acts as a kind of wedge; it likewise prevents the waste of colour by splashing. " The printing block, &c., with its frame, is then pushed forward " along the groove till it comes under the pressing-block or screw, " which is made to press upon the printing block by the power of " one, two, or more threaded screw moving within a box by " means of the handle and lever. The paper being first put in " a proper position to the points, and confined by screws." The block thus used may be twenty-one inches square, or of larger dimensions.

The "flocking machine."—"The paper to be flocked is brought " immediately from the printing machine and laid (with the flock

" in it) between two frames which are covered with canvas; a " beater is moved by a handle so as to agitate the surface of the " canvass, by which means the flock becomes more firmly fixed; " these two frames are then raised at the front end, and kept in " that position by turning up the flaps, then the beaters applied " in order to shake off the superfluous flock into the drawer."

The "finishing machine" consists of a "sliding box," between which, and the bearers, "are laid the rolls of paper to be pressed " by the perpendicular motion of the sliding box, which is joined " to a rack, and which is raised and lowered by turning the " handle, on the axis of which is a pinion taking into the teeth of " a wheel, on the axis of which wheel is another pinion which " takes into or between the pins in the rack."

[Printed, 1*s.* 3*d.* See Rolls Chapel Reports, 8th Report, p. 101.]

A.D. 1814, March 12.—N° 3790.

SLATER, John.—"An improvement in a steam boiler and " apparatus for the purpose of washing, cleaning, and whitening " cloaths, cloathing, and cloths, and for warming and heating " closets, laundries, and other rooms by same." The improved boiler may be of suitable dimensions, and made of suitable material, and fitted up in brickwork in the usual manner. The lid of the boiler is held down by cross bars and screws. On the upper part of the boiler is placed a "projection," upon which is placed the safety valve, and in which are five holes or openings into which steam pipes are inserted. These steam pipes, being supplied with proper taps, are for the purpose of conducting the steam with a view to its application, first, in a tub with a false bottom, for the purpose of washing clothes with steam; second, into a tub for the purpose of boiling water; third, in a tub where the clothes may be whitened; fourth, in hollow rails or tubes to heat laundries or closets; and, fifth, into tubes or other receptacles for the purpose of warming rooms.

[Printed, 7*d.* See Rolls Chapel Reports, 8th Report, p. 103.]

A.D. 1815, February 4.—N° 3881.

THOMPSON, James.—"Improvements in the process of printing " cloth made of cotton or linen, or both." This invention consists in printing earthy or metallic solutions, such as the sulphate, acetate, or nitrate of alumina, iron, or copper, on cloth already dyed, and immersing it in a solution of oxymuriate of lime, with excess of lime. The chlorine discharges the colour already on the cloth, and the lime precipitates the metallic oxide on the parts so discharged. The piece is then well washed and cleansed, and the oxide so deposited is found of itself to be of a different colour to the piece; or the piece may be dyed with various dyewoods, and those parts so acted upon will become of different tints.

The use of British gum as a thickener is incidentally mentioned in this Specification.

[Printed, 4*d*. See Repertory of Arts, vol. 27 (*second series*), p. 274; also vol. 34 (*second series*), p. 129; and Rolls Chapel Reports, 8th Report, p. 107.]

A.D. 1815, March 14.—N° 3897.

RIDGWAY, JONATHAN.—"A method of casting and fixing, " at the same time, metallic types on the surface of metallic " cylinders, or metallic rollers, or any cylinders or rollers having " metallic surfaces, or on blocks of metal, or blocks having " metallic surfaces, or on flat metallic plates, for the purpose " of printing patterns on cloth made of cotton or linen, or both." This invention consists in casting and fixing, at the same time, figures on metallic surfaces which have been prepared in the usual manner for soldering. The figure to be cast or moulded is cut through the bottom of an iron cup, which holds the melted meltal; or "I make such mould or moulds in or upon detached piece or " pieces of such metal, and afterwards fasten the same to the " under side of such cup; I then make two or more holes through " the bottom of such cup into the top of each of such moulds," for the admission of the metal and exit of the air. This "typing " tool," with mould attached, being placed on the metallic surface, the melted metal is poured into the cup in greater quantity than will fill the moulds. When the metal is sufficiently cool, the excess in the cup is cut off and the typing tool removed, leaving the figure attached to the metallic surface. The Patentee shows a mode of adjusting accurately the position and relative situations of the figures or types.

[Printed, 4*d*.]

A.D. 1815, April 4.—N° 3902.

RIDGWAY, JONATHAN.—"An improved roller to be used in " printing cloth made of cotton, or linen, or both."

The roller is made with detached shells of lead and tin, or other cheap metal, with collars at each end of harder metal, so that different shells may be used in succession on one working mandrel. The chief interest in the Specification is in the introduction of the "slot and tab," consisting of a longitudinal groove cut or cast in the iron mandrell with a corresponding projection cast in the roller to prevent the one turning round on the other.

[Printed, 3*d.*]

A.D. 1815, June 29.—N° 3936.

SMITH, Samuel John.—"An improved method of staining, "printing, or dying on silk, woollen, cotton yarn or goods manufac- "tured of cotton." A coloured extract is made from the bark, leaves, and wood of the Spanish chesnut, or the horse chesnut, the birch, the willow, and the hazel, by boiling them with whitening, chalk, potash, or soda, dissolved in water; blacks, fawns, buffs, slates, bottle greens, washing drabs, muds, and doves, can be dyed with the above extract in conjunction with other known substances.

[Printed, 3*d.* See Repertory of Arts, vol. 28 (*second series*), p. 257; and Rolls Chapel Reports, 8th Report, p. 108.]

A.D. 1816, January 10.—N° 3974.

COWPER, Edward.—"A method of printing paper for paper "hangings and other purposes." This invention consists in curving or bending stereotype plates by passing them while hot between two cylinders. These plates are then, in the usual way, attached to a cylinder and used for printing.

[Printed, 6*d.* See Rolls Chapel Reports, 8th Report, p. 112.]

A.D. 1816, September 30.—N° 4064.

CLAYTON, Robert.—"A new method of preparing, making, "and finishing metal and composition blocks, plates, rollers, "types, and dies, by which various patterns, devices, and com- "positions can be effectually imprinted and impressed on cotton, "linen, silk, worsted, mohair, and woollen cloths, (or any fabric "made of a mixture of any two or more of them), also on paper, "leather, porcelain, and earthenware, and by which the same "effects can be produced in a shorter time and at a considerable "less expense than by any other method now used for those pur-

" poses." " This invention consists, first, in etching upon zinc " in its pure or slightly alloyed state by means of solutions of " metallic salts." For this purpose the metal surface of zinc, either pure or slightly alloyed, is protected by varnish in the usual way, and the ground removed by a point or etching needle, or by any other means, from those parts intended to be corroded or bitten; " but instead of dilute nitrous acid, or aqua fortis, or " any other uncombined acid, I employ solutions or mixed solu- " tions of metallic salts, or acids in combination with such metals, " as can be separated from the said acids by zinc, either in its pure " state or slightly alloyed." " For this purpose I greatly prefer " the acetate of lead, which may be of the specific gravity of 1020." " In this solution I expose the plates on rollers of zinc properly " prepared for biting, and I take care to remove from time to " time the metallic effervescence which arises."

Secondly, in producing relief on zinc in its pure or slightly alloyed state by means of solutions of metallic salts, acid salts, or acids. The pattern is drawn on the surface of the metal with some waxy composition, " but I prefer to use for this purpose a com- " position of three parts drying oil and one part of oil of lavender " mixed up with lamp black, or with bole or prussian blue;" and the plate or roller being properly protected at the edges, ends, and back " is immersed in a dilute solution of such metalic salts as " have been directed in the preceding part; " or I sometimes use " dilute solutions of uncombined acid or of acidulous solutions of " salts."

" Thirdly, for casting types, devices, &c., in wooden moulds or " matrices." The mould is made by " indenting or impressing " an original etched, relieved, cast, cut, or otherwise fashioned " type or punch in or upon the smooth surface of a piece of wood " cut transversely or across the grain." When the mould " is " thus prepared I surround it with a rim or border of card or " thin copper or other suitable boundage as will confine the fluid " metal and allow a sole" to be formed. A piece of wood corresponding in size with the mould, having a perpendicular hole bored through it, is then gently pressed on the above rim, and the fluid metal poured in through the hole. Any metal or mixture of metals may be used which will melt at a moderate heat, such as a mixture consisting of " equal weights of bismuth, tin, and lead."

[Printed, 4*d*.]

A.D. 1817, December 22.—N° 4193.

CLELAND, WILLIAM.—" An improvement in the bleaching of " flax and hemp, and also in the bleaching of yarn and cloth, or " other goods made of either of those articles." This invention consists " in the use of yeast, and in the use of the different kinds " of saccharine and farenacious substances, which, by the process " of fermentation, are capable of being converted into artificial " yeast, such as potatoes, carrots, turnips, the flour of wheat, " barley, peas, &c." The Patentee prefers the use of " potatoes " which are to be boiled " in water till they are reduced into a perfect " pulp; having done so, throw the said pulp into a large wooden " or other fit vessel, and when it has cooled down to 60° or 70° " Fahrenheit, mix with it a bucket of yeast, and in three or four " days, according to the temperature, the whole will be converted " into that substance well known under the term artificial yeast." " When the yeast is thus prepared (from half a ton of potatoes) " and ready for use, add as much water to it as shall be sufficient " for the whole liquid to cover a ton of yarn or cloth." The yarn, &c., is then well soaked and steeped in this liquor for five or six days, then taken out and washed extremely well. " The re- " maining part of the process of bleaching is to be executed in " the usual manner." The boiled potatoe pulps, at 60° or 70°, or potatoes grated down may be mixed with the yeast and put immediately upon the goods.

[Printed, 3*d*. See Repertory of Arts, vol. 34 (*second series*), p. 12; Rolls Chapel Reports, 8th Report, p. 126.]

A.D. 1818, January 7.—N° 4194.

COWPER, EDWARD.—" Certain improvements in printing presses " or machines used for printing." This invention relates to improvements in letter-press printing. (See Abridgments on that subject.) A mode is shown of printing by two cylinders on both sides of the paper at one operation. The material to be printed is caused first to pass under and partly round one printing cylinder which will print one side, and then to pass over and round a second cylinder suitably placed which will print the other side. Both rollers are suitably supplied with colour.

[Printed, 2*s*. See Engineers' and Mechanics' Encyclopædia, vol. 2, p. 345; Rolls Chapel Reports, 8th Report, p. 122.]

A.D. 1818, April 11.—N° 4246.

LANG, Gilbert, and SMITH, Robert.—"Mode of producing "the Swiss new deep and pale red by topical mordants, and a "pale blue discharge on said red." For the deep and pale red, immerse the cloth in an emulsion of one part oil and twenty parts of soda lee at 4½° T. to which a little sheep's dung is added. Then dry the cloth in a stove, and repeat this process several times. Steep in water twelve hours at 120° F., and repeat the emulsion and drying process four times, steep in hot water, and wash the goods well. The cloth so prepared is padded with a mordant consisting of gall liquor and alum, or acetate of alumina; oak bark or saw dust, shumac, &c. can be substituted for the galls.

The pink mordant is obtained by adding to the emulsions above described (called the white liquors) a decoction of galls and alum; steep in water at 125° F., and wash.

A third or dark red is obtained by printing red liquor. Dung, cleanse, and dye with madder; and clear with soap, and chloride of lime, in the usual manner.

For the pale blue dissolve prussian blue in nitro-muriate of tin, thicken the solution and print it on the cloth. Immerse the cloth in a bath of chloride of lime. The red color is thereby discharged and the blue deposited in its place.

[Printed, 4*d*. See Repertory of Arts, vol. 39 (*second series*), p. 142; and Rolls Chapel Reports, 7th Report, p. 119.]

A.D. 1818, May 4.—N° 4252.

ROWE, Joshua.—"A certain improvement or improvements or "process or processes applicable to the printing of cotton and other "cloths, and to other purposes." This invention is for the making of sulphate of alumina by the direct combination of oil of vitriol with clay. The vitriol and clay are mixed together to form a paste, made into cakes, and roasted in an oven to a dull red heat; pulverize this baked composition, and expose it to the air for a few days. Disolve with hot water the sulphate of alumina so formed, filter the solution, and evaporate it down even to dryness if required. Iron, when present in excess, may be removed by adding to the solution some prussiate of soda or potash.

[Printed, 3*d*. See Repertory of Arts, vol. 38 (*second series*), p. 72.]

A.D. 1818, July 22.—N° 4280.

ORMROD, Richard.—" An improvement in the manufacture " of copper or other metal cylinders or rollers for calico printing." The copper or brass roller, made by any of the usual methods, being placed on a mandrel of iron or steel, is caused to pass through iron or steel collars with diameters something smaller than that of the roller. The roller is thereby elongated and made throughout of one texture and of uniform hardness. A roller of thirty-six inches in length before it is drawn, is extended to forty-two inches by repeated passages through collars, each in succession having a diameter less by about one eighty-fourth part of an inch. The power used is estimated to be that of one hundred horses.

[Printed, 3*d.* See Repertory of Arts, vol. 34 (*second series*), p. 266; and Rolls Chapel Reports, 8th Report, p. 127.]

A. D. 1818, August 7.—N° 4287.

HOLLINGRAKE, James. — Manufacturing copper or other metal rollers for calico printing, by subjecting the metal that is to form the roller, while it is in an iron mould in a fluid state, to mechanical pressure, and to continue such pressure till the metal shall be fully set. The roller may be hollow or solid.

[Printed, 3*d.* See Rolls Chapel Reports, 8th Report, p. 132.]

A.D. 1819, May 15.—N° 4371.

HOLLINGRAKE, James.—" Making and working a manufac- " ture for applying a method of casting and forming metallic " substances into various forms and shapes with improved closeness and soundness in texture." This invention consists in pressing, by means of pistons, the metal while fluid and in the mould, whereby soundness of surface and closeness of texture are insured in the making of cylinders, cannon, &c.

[Printed, 3*d.* See Repertory of Arts, vol. 41 (*second series*), p. 162; and Rolls Chapel Reports, 8th Report, p. 134.]

A.D. 1819, October 11.—N° 4400.

PERKINS, Jacob.—" Machinery and implements applicable to " ornamental turning and engraving, and to the transferring of " engraved or other work from the surface of one piece of metal " to another piece of metal, and to the forming of metallic dyes " and matrices; and also improvements in the construction and

" method of using plates and presses for printing bank notes and " other papers, whereby the producing and combining various " species of work is effected upon the same plates and surfaces, " the difficulty of imitation encreased, and the process of printing " facilitated, and also an improved method of making and " using dies and presses for coining money, stamping medals, and " other useful purposes."

The first drawing accompanying this specification shows the mechanical arrangements of an "engine lathe for engraving oval " or circular geometrical figures upon metal or other surfaces, " whether flat, convex, or concave." "In order to produce a " figure upon a flat, concave, or convex surface with this lathe, " let one of the tooth wheels upon the upper mandrell, having " 132 teeth, be connected with the larger of the intermediate " wheels, fixed upon the above, and having fifty-eight teeth, and " let the smaller of those wheels having thirty-two teeth take into " the toothed wheel of 352 teeth, which is fixed upon the lathe " mandrell, and it will be found that four revolutions and five-" sixths of another will be made by the (first) wheel to one revolu-" tion of the lathe mandrell, and consequently six revolutions of " the lathe mandrell will complete the figure upon the surface of " the body to be operated upon, and this whether the figure be " circular or oval, the latter depending upon the eccentricity of " the oval chuck." By altering the connections of the wheels, different figures will be produced, as also by varying the eccentricity of the eccentric cylinder. "In operating upon convex or con-" cave surfaces, the turning tool in the slide rest ought to be " acted upon by a spring and regulating guage, so as to cause it " to follow up the varying surfaces."

The second drawing represents "an engine lathe for engraving " certain figures upon the peripheries of metal or other cylinders." " Thus let the middle toothed wheel of one hundred teeth upon " the arbor be connected with the intermediate wheel having 180 " teeth, and let the pinion of thirty-two teeth, fixed upon the " same arbor with the intermediate wheel, be connected with the " contrate wheel of 352 teeth, fixed upon the lathe mandrell, then " the difference of velocity between the toothed wheel and the lathe " mandrell will be as 19 and four-fifths to 1, and as a motion " backwards and forwards endways is given to the mandrell at " every revolution of the arbor, so consequently nineteen and " four-fifths waved lines will be made round the periphery of the

" cylindrical surface to be operated upon at each revolution of the " mandrell."

" No. 3 drawing represents an horizontal vibrating lever press."

" No. 4 drawing represents an improved steel or copper plate or " block printing press, which improvements principally consist in " a new method of heating the plate or block in the use of a " tympan."

The 5th drawing represents " a cylindrical steel or copper plate " printing press."

And the 6th drawing represents a " circular coining press."

For details of these inventions see the Specification.

[Printed, 4*s.* 2*d.* See London Journal (*Newton's*), vol. 1, p. 159; Mechanics' Magazine, vol. 6, p. 508.]

A.D. 1819, November 1.—N° 4404.

CONGREVE, Sir William.—" An improved mode of inlaying " or combining different metals, or other hard substances, appli- " cable to various useful purposes." A metallic plate is pierced into any filagree work or pattern, and a quantity of metal, more fusible than that of which the plate is made, is then run at the back of it, filling the filagree work or pattern. These may be separated and applied to printing in two or more colours, forming a compound plate.

[Printed, 3*d.* See Repertory of Arts, vol. 42 (*second series*), p. 272; and London Journal (*Newton's*), vol. 1, p. 241.]

A.D. 1820, January 25.—N° 4432.

LONDON, Phillips, the Younger.—" A method of destroying " or decomposing the offensive vapor arising from animal or " vegetable matter, when heated." " The pan, boiler, vessel, or " other apparatus, in which animal or vegetable matter is to be " heated, and from which offensive fumes or vapors arise or are " emitted " " is to be enclosed by means of bricks, metal, or other " material," and " from such inclosed part a communication by " means of a flue or flues is to be made with the ashpit " of the apparatus, or with the ashpit of any other fireplace. The ash pit is provided with a door, on the shutting of which the fumes are drawn, by means of the draft, through the fire, and burned.

[Printed, 5*d.* See Repertory of Arts, vol. 42 (*second series*), p. 132; London Journal (*Newton's*), vol. 1, p. 185.]

A.D. 1820, July 20.—Nº 4489.

BUSH, Mathew.—" An improvement on a machine now in use " for printing silks, linnens, calicos, woollens, and other similar " fabrics, by means of which improvement shawls and handker- " chiefs can be printed with one or more colour or colours, and " whereby linens, calicos, silks, woollens, and other fabrics of the " like nature, intended for garments, can be printed with two or " more colours."

"This invention consists, first, in the manner of applying two " narrow copper plates, in order to print shawls and handker- " chiefs with borders. The length of the said narrow copper " plates must be equal to the width of the piece of calico or other " fabric on which the handkerchief is to be printed, but the breadth " of each plate need not be more than one-sixth or one-seventh of " the dimensions of the handkerchief." One of these plates must be engraved with the pattern of the cross border, and the other engraved to print one-fourth or one-fifth of the middle part of the handkerchief, and also a portion of each of the side borders. "The " middle plate is fastened down upon the plank (of the common " press) in the usual manner of the narrow plates for printing " garment pieces, but the border plate is fixed on another plank " further back in the carriage, and in such manner that it can be " turned about horizontally, to reverse it, end to end, in order to " print both the cross borders of the handkerchiefs from the same " engraving."

"The second part of this invention consists in the manner of " applying a flat block to the same press, in order to print or " ground a second colour to the calico, immediately after it has " been printed, as aforesaid, with one colour, by the copper plate." " This block is fixed to a plank which extends across the press in " front of the top roller, and is received at the two ends in inclined " grooves, which are fixed inside of the cheeks of the press. The " plank and block can slide in these grooves, in order that the " block may follow the motion of the calico when it gives its " impression thereto. An horizontal axis, which extends across " the press, carries a segment of a cylinder, which operates at the " back of the plank in the manner of a D roller to press the face " of the block against the calico, and print the same." " Immediately after an impression is made the block is furnished with " color for a second impression by causing a small furnishing

" roller to roll horizontally beneath the block (on its face side), " and then brought back again, whereby it gives colour to the " face of the block."

[Printed, 2*s.* 6*d.* See London Journal (*Newton's*), vol. 2, p. 424.]

A.D. 1820, October 9.—N° 4496.

FRITH, Robert.—" Improvements in the method of dyeing " and printing various colours, so as to fix or make the same " permanent or fast on cottons, linens, silks, mohair, worsted, " and woollens, straw, chip, and leghorn." This specification describes, first, the way "to make metals" by melting together lead and silver, and block tin and silver. Next is described the making of solutions of the above metals in muriatic and nitric acids, with other metals and salts, namely, copper, Roman vitriol, sal ammoniac, and iron, or sulphate of iron. The above solutions are then made into mordants by the addition of water, and strong liquor from shumack, galls, marobilan, or valonia, and allum. The following colours may then be dyed on cotton and silk:—yellow, straw, orange, red, green, pink, scarlet, black, olive, drab, crimson, brown, purple, garnet. The materials used in dyeing the foregoing colours are, welds, bark, fustic, red liquor, alum, sugar of lead, pearlashes, madder, indigo, galls, shumack, marobilan, valonia, cochineal, verdigris, and iron liquor.

For dyeing yellow on chip, straw, or leghorn, the above-mentioned mordants are employed, with welds, American bark, and fustic.

The following colours may be printed on cotton, namely, purple, crimson, chemical red (also applicable to woollen and silk goods), chemical yellow, and chemical green, by means of the mordants before described, with the addition of logwood, cochineal, madder, galls, sacchara saturna, alum, cream of tartar, pearlashes, American bark, turkey yellow berries, peach berries, and Prussian blue. Printing red on silk is effected by cochineal, alum, cream of tartar, verdigris, blue vitriol, Brazil wood, and peach wood. In printing black with red on yellow silk, logwood is used with the mordant.

Cotton is dyed of a nankeen colour by the mordants before described, with the addition of galls, valonia, shumack, marobilan, alder bark, nankeen bark, mahogany bark, or mahogany sawdust.

[Printed, 4*d.* See Repertory of Arts, vol. 42 (*second series*), p. 134; and London Journal (*Newton's*), vol. 2, p. 321.]

A.D. 1820, December 22.—N° 4521.

CONGREVE, Sir William."—"Certain improvements in "printing in one, two, or more colours." This invention relates chiefly to improvements in "letter-press printing." (See Abridgments on that subject.)

The Patentee describes a mode of printing "two or more colours "at one impression by compound plates." The various portions of the design are cast in metal, or cut in wood, &c., separately in such a manner that when the parts are brought together they will form one compound plate or printing surface. The portions of the plate (or block) may be separately and successively depressed from the others, to admit of the colour rollers passing over them to supply the particular colour, and again elevated to the original plane, by means of a cam movement, which actuates a "knuckle-jointed" lever, one end of which is attached to the framing and the other to the portion of the printing plate, requiring to be depressed and again elevated.

[Printed, 1*s.* 3*d.* See London Journal (*Newton's*), vol. 3, p. 9.]

A.D. 1821, January 9.—N° 4525.

BRADBURY, John Leigh.—"A new mode of engraving "and etching metal rollers used for printing upon woollen, "cotton, linen, paper, and other substances."

It consists in etching the surface of copper rollers upon the plan previously in use for flat plates. The roller is varnished while hot and etched by aqua-fortis. The roller is suspended in the trough of acid by two cords which pass round pulleys attached to the ends of the roller and over a wooden roller placed three feet above the trough; the turning of the wooden roller causes the copper roller to revolve in the acid.

[Printed, 3*d.* See London Journal (*Newton's*), vol. 3, p. 240.]

A.D. 1821, October 18.—N° 4594.

FERGUSSON, James.—"Improvements upon, additions to, or "substitutes for certain materials or apparatus made use of in "the process of printing from stereotype plates."

The object of this invention is effected "by putting elastic sub-"stances under the stereotype plates [whenever used for printing "from], whereby the printed impressions from them [from block

" or cylinder] are immediately equalized in whole or in part, for " the elastic substances yield to the pressure upon the thicker " parts of the plates, and at the same time afford the necessary " resistance for obtaining sufficient strength of impressions from " the thinner parts." The Patentee prefers to use cork for the above purpose of the thickness of a quarter of an inch, and to attach it by means of soft pitch, &c.

[Printed, 3*d*. See Repertory of Arts, vol. 42 (*second series*), p. 257; London Journal (*Newton's*), vol. 3, p. 16.]

A.D. 1821, November 27.—N° 4620.

BAYLIS, William, Junior.—"A machine for washing and " cleansing cloth."

This machine consists of a cistern or "trough" containing water, "in which fuller's earth or other saponaceous substances " may be mixed if necessary." The piece to be washed having its ends fastened together is passed over rollers placed in the trough, but above the surface of the water; one of these rollers " is covered with short tufts of bristles or wire, in order to make the " cloth adhere, so as to be carried round by the revolution of the " roller." The cloth is cleansed as it passes over another roller " by means of compression, produced by sudden but slight blows " given in rapid succession from a hammer covered with leather, " which may be varied in force, so as to avoid injuring the texture " of the thinnest cloth, by the substitution of different weights " secured by pins to the top of the hammer." The hammer is attached to a lever, and is actuated by a "snail" or revolving cam. The fabric is kept close upon this roller by means of two guide rollers, one on each side. A small stream of water is directed upon the cloth as it passes over the roller at the point struck by the hammer. The dropping side of the bottom of the cistern may be "curved or inclined," for the better conducting of the cloth.

[Printed, 5*d*. See London Journal (*Newton's*), vol. 3, p. 75.]

A.D. 1821, December 10.—N° 4625.

WARCUP, William.—" Improvements upon a machine for " washing linen cloths, cotton cloths, or woollen cloths, whether " in the shape of piece goods or of any article made up of linen " cloth, cotton cloth, or woollen cloth." Generally the machine is a vessel or box having a circular bottom, in which is suspended an oscillating frame or "presser," worked to and fro by a lever. In the box are placed two planks called "tables," one on each side, on which the "presser" at each oscillation squeezes the cloth till it is washed.

The Patentee claims, first, "the method of supplying the " machine with water, and of discharging the stained or dirty " water therefrom." The bottom of the washing vessel is perforated by a row of holes, and the clean water is introduced thereby by means of a pipe connected to a cistern placed at some height. The dirty water is allowed to flow out through a cock.

Secondly, the application of the "moveable tables." These moveable tables may be termed the "washing boards;" they are hinged at the lower angles or corners so that their positions, as regards convenience in putting in and taking out the linen, may be better adapted.

Thirdly, in the application of the "pieces or knuckles." On the "tables" (washing boards) are fixed a series of pieces of wood, "so as to form alternate projections with spaces or grooves " between them, the more effectually to wash the cloths when " the said cloths are interposed and squeezed or pressed between " the faces of the tables and the presser."

[Printed, 10*d*. See London Journal (*Newton's*), vol. 5, p. 117.]

A.D. 1821, December 19.—N° 4628.

BRIERLEY, SAMUEL.—"An improved method of preparing " raw silk, and cleansing the same, for the purpose of dying and " manufacturing."

"Being prepared with an apparatus for the production and " confining of steam (referred to below), and having soaked the " raw or skain silk in a strong solution of soap so as to soften " the gum, I enclose the silk, whilst it continues in a wet state, " in that part of the said apparatus called the steam chest, which " I fill with steam, and allow the silk to remain enclosed a sufficient time to dissolve the said gum by means of the steam; " after which I immediately wash the silk in a weaker solution of " common soap than that first used, and, ultimately, in water " only; and thus I entirely remove the said gum and all other " impurities, and the silk only remains to be dried before it is " ready for use." The apparatus, as drawn, consists of an iron box, with a door capable of being shut close, and a tap to draw off the condensed water. The shape being nearly the same as the box now commonly used for steaming goods, connected with which, by means of pipes and cock, is a steam boiler.

[Printed, 6*d*. See London Journal (*Newton's*) vol. 3, p. 177.]

A.D. 1822, January 29.—N° 4642.

CONGREVE, Sir William.—" Improved methods of multiply- " ing facsimile impressions to any extent." The first mode of multiplying facsimile impressions applies principally to letter press work.

Secondly, applies to copper plate work. " The original may be " engraved on a flat surface of any size, and transferred to a " second flat surface also of any size, and from thence laid down " as copies of the original upon any number of other flat surfaces " by the use of plates of different gradations of hardness, as hard " and soft steel, and copper, or soft steel, copper, or brass and " pewter. To effect this it only requires that the second flat sur- " face employed should be a thin plate, when a sufficient pressure " will be obtained to produce the transfers, whatever may be the " dimensions of the plate, by merely passing the plate through a " rolling press or mill, the rollers of which need not exceed three " or four inches in diameter."

[Printed, 3*d*. See London Journal (*Newton's*) vol. 5, p. 185.]

A.D. 1822, April 16.—N° 4668.

COOK, Benjamin.—" A certain mixture or preparation which " may be used with advantage in preventing the danger of acci- " dents from fire." For this purpose the Patentee claims "the " application of the fixed alkaline solution in [for] preventing all " accidents from fire to callicos, cottons, silks, muslins, cloth, and " linen of every description, bed and window curtains, and sail- " cloths," as well as to " woodwork of all sorts, either in build- " ings or vessels of any description; and in the case of timber " to prevent the dry rot." The Patentee prefers to use " the " pure fixed vegetable alkali," which should be dissolved in soft water, and applied by steeping the material under treatment in a clear solution of the alkali, or by brushing or coating the solution over its surface. The required strength for fabrics may be ascertained by adding alkali to the water, until cotton, paper, or linen dipped into it and dried will not blaze. In preparing timber with this solution the Patentee also proposes to extract or force out, "by means of an engine," the sap from trees while the bark is still on, and then "to saturate the whole, by forcing the alkali "through all the pores of the tree, after which it may be barked "and sawed up into planks, when required." Fabrics, fibrous materials, or timber so treated will char by intense heat, but not burst into flame.

[Printed, 3*d*. See Repertory of Arts, vol. 44 (*second series*), p. 267; London Journal (*Newton's*), vol. 5, p. 235.]

A.D. 1822, April 24.—N° 4673.

FORD, Robert.—"A chemical liquid or solution of annotto." "To make twenty gallons of the chemical liquid or solution of "annotto, I take fifty-six pounds of annotto, more or less; I "reduce it with warm water; then I pass it through a fine sieve, "let it stand seven days, or longer; then I add the leys of sub- "carbonated potash, a sufficient quantity to produce the colour "required; the quantity, and also the strength, must depend on "the colour it is intended to produce, and also on the quality of "annotto (other suitable articles may be used for this purpose); "then I add to the above about six pints of the aqua lixivium "caustic, more or less; then I take alcohol, one hundred and "ninety-two ounces, and mix the whole together, keeping it in a "closed vessel."

[Printed, 3*d*. See Repertory of Arts, vol. 44 (*second series*), p. 271; London Journal (*Newton's*), vol. 4, p. 70.]

A.D. 1822, October 10.—N° 4721.

FLINT, Alfred.—"A new improved machine for scowering, "pising, and washing of woollen cloths." The apparatus consists generally of a cistern to contain the liquor, over which are placed two or more revolving rollers. The material to be washed &c., being placed in the cistern is caused to rise out of it and pass between the rollers, and then descend into the liquor in the cistern again. The Patentee claims, first, "the use and application "of [the washing] rollers, whose exterior surface is composed of a "convenient number of ribs, bars, or reeds, either round, or "forming any part of a circle, placed close together, or left a "little apart to form channels or grooves between them," "the

" alternate action of which gives at the same time percussion, " compression, and friction, necessary for the expunging coloring and foul matter from woollen cloths."

" Secondly, the use and application of a supplementary cistern " [or trough], which is so placed and arranged under the lower " roller or rollers," as to catch and convey away, when required, the dirty or soiled liquor expressed by the rollers.

Thirdly, " the figure or form I give to my cloth trunk, trough, " or cistern, which effectually prevents the cloth from getting " hampered or entangled, or from being strained or torn asunder." The bottom of the water cistern is made circular, and the top edges are curved outwards. The washing " rollers may be either " formed out of solid matter, or made in the manner of shells or " skeleton rollers."

[Printed, 6*d*. See London Journal (*Newton's*), vol. 7, p. 236; Register of Arts and Sciences, vol. 1, p. 249; Engineers' and Mechanics' Encyclopædia, vol. 2, p. 852.]

A.D. 1823, January 20.—N° 4752.

SMITH, Junius.—" Improvements on a machine for washing, " cleansing, and whitening cotton, linen, silk, and woollen garments, or piece goods." This invention consists " in the introduction of an open cylindrical vessel, within a closed angular " vessel, which cylinder (containing the articles to be cleansed) " being made to revolve carries the goods through the water or " other fluid contained in the closed vessel." The outer angular vessel may be a steam-tight box, made of wood or metal, attached to a frame; the periphery of the open cylindrical vessel is formed " by ribs of wood or metal, and its interior is divided into several " compartments " similar to a dash wheel. " Into these compartments the articles intended to be operated upon are introduced through [suitable] appertures." The water, steam at any temperature, acid, alkali, or other fluid are admitted by suitable pipes and taps into the closed vessel; the inner vessel is then caused to revolve by means of a winch or by gearing, and thereby dash and wash the goods.

[Printed, 6*d*. See Repertory of Arts, vol. 2 (*third series*), p. 444; London Journal (*Newton's*), vol. 6, p. 116.]

A.D. 1823, February 18.—N° 4758.

BURY, Thomas.—" An improvement in dyeing or producing a " permanent nankeen colour on cotton, wool, skein yarn, and

" certain other articles." " The improvement consists solely in " the use of the bark of the cork tree, instead of woods or other " materials heretofore used in dyeing a nankeen colour."

" The bark may be used and applied as follows :—For every " twenty pounds weight of skein yarn, cotton wool, or the same " weight of other articles, prepare a mordant for dyeing a nankeen " in the usual manner ; pass the articles intended to be dyed " through the mordant from ten to fifteen minutes ; then wash " them well, and raise them in a decoction of the bark of the cork " tree of about fourteen gallons of water to twelve pounds' weight " of the bark, ground or well bruised or crushed, which operation " or raising will be effected in from ten to fifteen minutes ; then " prepare another mordant for dyeing a nankeen colour in the " usual manner, pass the articles intended to be dyed through " this mordant from ten to fifteen minutes ; then wash off in soap " and warm water or hartshorn and warm water, and dry."

[Printed, 3*d*. See Repertory of Arts, vol. 46 (*second series*), p. 138 ; London Journal (*Newton's*), vol. 5, p. 286.]

A.D. 1823, February 18.—N° 4760.

CHURCH, WILLIAM.—" An improved apparatus for printing, " to be used by type, block, or plate printers." The improved apparatus consists of a " new method of forming a cylinder of " types, blocks, or plates ; " " and also in the mode of applying " the same or other cylinders to printing in more than one colour." " The individual types, blocks, or plates, must be convex on their " face or outer surface, and concave on their back or inner sur- " face, the curve of the latter being formed to the periphery of the " solid cylinder upon which they are to be bedded ; that of the " former to a segment of the entire cylinder of types when com- " bined and formed." "A nick or curved groove is made on both " of the flat parallel sides of each type, for the purpose of receiving " a ring," which holds the circle of types together. " Having " formed the design or pattern upon the printing cylinder by a " series of such circles of radiant types, blocks, or plates, as above " described, I secure the outer ring by a collet and screw cap upon " the end of the axle, which locks up the whole." Two or more of such rollers may be arranged round what is commonly called the " pressing roller " with weighted levers applied to their axles to produce the necessary pressure, and be supplied with colour in the usual manner. " A series of [revolving] hollow cylindrical

" tubes, heated within with steam or hot air," " are placed near to " the fabric for the purpose of drying the ink deposited by one " printing cylinder before it comes under the operation of the next " printing cylinder." The tubes have fans or vanes set in the direction of their radii for the purpose of producing a circulation of the air which surrounds them; and partitions are placed between them in order more effectually to conduct the damp from the fabric.

[Printed, 9*d*. See London Journal (*Newton's*), vol. 7, p. 57.]

A.D. 1823, March 24.—N° 4769.

WICKHAM, THOMAS.—" A compound paste and liquid to be " used for the purpose of improving and colouring lace and net " and manufactured articles made of flax, cotton, silk, &c., " whether the fabric of the same be composed of holes or interstices, or of open or close work, and to be applied in the " process of getting up, dressing, or colouring the same." The paste is composed of four pounds ground rice, eight ounces white sugar candy, eight ounces arrow root powder, and two ounces powdered spermaceti, boiled together for half an hour in four gallons of water. This is applied to the fabric (which is stretched on a frame) by a roller and colour-box in a frame on wheels. The roller frame is moved along the piece—the roller which presses on the fabric is supplied with the paste from the colour box. The paste may be coloured if it is desired to tinge the fabric. Five coats will give the " French foundation."

[Printed, 7*d*. See Repertory of Arts, vol. 46 (*second series*), p. 113; and London Journal (*Newton's*), vol. 6, p. 124.]

A.D. 1823, April 22.—N° 4783.

PALMER, WILLIAM.—" Improvements in machinery for the " purpose of printing and staining paper for paper hangings." This invention consists, first, in applying pressure to the roll of paper to be printed, and to the wire rod or axis upon which the said paper is coiled, by which pressure the straight or cut edge of the paper, after it is uncoiled from the roll, may be continually forced against a fixed guide, the guide being always so placed that the paper does not come in contact with it until uncoiled, and also the use of a plain roller applied upon the paper, which, when combined with the fustian or endless web, will effect the passage of the paper through the machine in one continuous right line. (The mode of pressing on the roll of paper to be printed is not described in the Specification nor shown in the drawings.) The fixed guide is two pieces which form sides to the frame between which the sheet of paper to be printed passes; attached to the guide is a milled board which serves to keep down the fag end of the paper after it leaves the wire (the paper roll). The pressing roller runs on the surface of the paper, on the table or frame, as it proceeds to be printed. " Secondly, consists of a driving crank, for giving pressure to the " printing blocks in paper staining, and also of two other cranks, " one of which I call a principal crank and the other a parallel crank, by the use of which the printing blocks may be raised parallel to the slab on which the paper is printed." These cranks are for converting the rotary motion of the first moving power into a perpendicular motion for the depression and elevation of the block. " Lastly, the application of colour to the under surface of " flat blocks in paper hanging manufacturing, by means of a " roller or rollers, when such blocks are attached to machinery for " the purpose of printing paper for paper hangings." The colour " roller revolving in the colour trough is covered with thin flannel to the depth of half an inch, and over this a single covering of oiled silk, and then the whole covered with a single thickness of fine woollen cloth. There are two distributing rollers, one on each side, working on the colour roller to equalize the colour on it. The whole is fixed on a frame having a parallel motion. When the lifting bar elevates the frame it causes the furnishing roller to advance also under the block and there supply it with colour.

[Printed, 1*s*. 2*d*. See London Journal (*Newton's*), vol. 6, p. 186.]

A.D. 1823, April 29.—N° 4789.

BOURDIEU, John.—" Mucillage or thickening matter to be " used in printing or colouring linen and cotton cloths, &c. This mucillage is made from the seed in the fruit of the " carob " tree," or " St. John's Bread," called in French " caronbier." The carob seed is steeped in sulphuric or other corrosive acid for six hours, which carbonizes the pellicule. The seed is then washed, dried, and rubbed in cloths to detach the skin, and afterwards reduced to fine powder. One lb. of ground carob seed is equal to nine pounds of gum senegal.

[Printed, 3*d*. See Repertory of Arts, vol. 46 (*second series*), p. 11; London Journal (*Newton's*), vol. 8, p. 235; and Register of Arts and Sciences, vol. 2, p. 91.]

A.D. 1823, June 3.—N° 4797.

BADNALL, Richard, the younger.—"Improvements in dyeing." These improvements consist, first, "in the application of prussian " blue to the purposes of dyeing silk, cotton, wool, or any other " article." A solution of prussian blue in fine powder is prepared by adding gradually to it " strong muriatic " acid, and stirring the mixture " till it has become a smooth pulpy homogeneous mass " of semi-gelatinous consistence. Silk deprived of its gum, and after steeping for three or four hours in " a cold solution of alum " water and washed," " is then put on sticks and immersed in the " bath (of solution of prussian blue to shade required), taking care " that it be constantly turned, that the color may be perfectly " level." " It is then to be well washed in running water," " and, lastly, dried either in the shade, or in a stove heated to not " more than a summer temperature."

" Second, in the application of pressure to dyeing in general, " whether it be that of thick cloths, hats, woods for veneering, " or any other purpose, or any other or more delicate materials, " such as linen, cotton, or silk goods, lace, &c. For this purpose the materials to be dyed are to be placed with the dying " liquor in any suitable vessel of wood, copper, iron, or other " material, the aperture of which vessel can be secured watertight by a lid fitted to it by any suitable and well known means. " To this vessel is to be fitted a hydrostatic pump, or any other " machinery employed for the purpose of encreasing high pressure, such as a column of water or mercury of sufficient height, " &c. All things being thus adjusted the lid is to be fitted " securely on, and the pump worked until the necessary pressure " is obtained, when it is evident that if the goods are put in dry " or well wrung the pressure thus produced will greatly facilitate " the introduction of the dyeing liquor within the internal pores, " particularly in heavy cloth goods, hats, woods, hard-twisted " silk or lace; and, if necessary, suitable mechanical means may " be employed to agitate and wring the goods while under " pressure."

[Printed, 3*d*. See Repertory of Arts, vol. 46 (*second series*), p. 329; London Journal (*Newton's*), vol. 7, pp. 18 and 296; Register of Arts and Sciences, vol. 1. p. 118.]

A.D. 1823, June 3.—N° 4798.

ATTWOOD, Thomas.—Making cylinders for printing cottons, calicoes, and other articles by soldering a cylinder of copper, or other metal fitted for engraving, upon a cylinder of iron. The Patentee says, "I thus obtain cylinders with an *external* surface " fitted for engraving, and supported by an internal metal of a " cheaper and stronger nature."

[Printed, 3*d*. See London Journal (*Newton's*), vol. 7, p. 285.]

A.D. 1823, June 10.—Nº 4801.

COWPER, Edward.—"Improvements in machines and apparatus for printing calico, linen, silk, wool, paper, or other " substances capable of receiving printed impressions. These improvements consist, "first, in placing moveable types, blocks, " stereotype plates, &c. on the flattened side of a cylinder (which, " from its form, is generally called a D roller or cylinder), around " which cylinder, by means of a series of rollers, the color is distributed, the rollers also furnishing the color to the types, " blocks, &c., as the D cylinder revolves. I wrap the calico or " other substance to be printed round a cylinder covered with " woollen cloth or other suitable substance, as in the ordinary " process of calico printing, and I give the impression by causing " the D cylinder to advance to the calico cylinder (*i.e.*, the cylinder " round which the calico is wrapped), and to roll the block, form " of types, &c. against the calico. I combine the above improvement with the essential parts of the ordinary calico copper-" plate press."

" Secondly, I fix two or more blocks on the surface of a prism, " the patterns of such blocks having a relation to each other, for " the purposes of printing two or more colours. The calico or " other substance to be printed is stretched over a table, and the " prism revolves at a short distance from it, and when the impression is to be given, the prism advances towards the table; " while this is going forward, the block which is uppermost is " furnished with its appropriate colour by a hand roller or any " other convenient method."

[Printed, 9*d*. See London Journal (*Newton's*), vol. 8, p. 289.]

A.D. 1823, July 15.—Nº 4813.

BRADBURY, John Leigh.—" Improvements in the art of " printing, printing or staining silk, cottons, woollen & other " cloths, and paper, parchment, vellum, leather, and other substances by means of blocks or surface printing."

Metal pitch-pins are fixed on the printing table of a length sufficient to stand above the surface of the blanket and also above the cloth itself, and in the block are corresponding holes made of brass or other metal. The block is therefore guided in printing by fitting the holes in the block on the pitch-pins.

[Printed, 3*d*. See London Journal (*Newton's*), vol. 9, p. 240.]

A.D. 1823, July 15.—N° 4816.

PALMER, William.—" Improvements in machinery applicable " to printing on calico or other woven fabrics composed wholly or " in part of cotton, linen, wool, or silk." The Patentee claims, " first, the application of driving cranks and driving rods, for the " purposes of raising the printing blocks and giving pressure " thereto. Secondly, the application of a principal crank and a " parallel crank; the first for supporting the block carriage and " block, and the second for preserving the parallel position of the " block. Thirdly, the application of a chord or a chain for the " purpose of shifting the block carriage and block. Fourthly, " the combination and connection of a block carriage with a " sliding roller frame, by means of a sliding piece and guiding " groove, by which combination when the one is moved laterally " the other moves also. And, lastly, the application of a bow " and pulley, as combined with a block carriage and a color roller " frame, by which combination a continual connection is maintained between those parts in every position." " The calico is " placed very smoothly on a roller, and passed under another " roller, and over a drum, round which the endless web of fustian " (the blanket) passes. The turning of the drum draws the cloth " forward and over the platten. On turning a handle the driving " rod will bring down the printing block, in consequence of its " connection with the principal crank neck, and thereby effect the " necessary pressure upon the printing block, leaving its impression upon the cloth. When the principal crank descends the " lifting arms are turned by the action of two segment wheels. " The parallel frame is at the same time drawn downwards by the " action of the pins or studs on the upper ends of the arms."

[Printed, 1*s*. 3*d*. See London Journal (*Newton's*), vol. 8, p. 125.]

A.D. 1823, July 24.—No 4822.

TURNER, Miles, and ANGELL, Lawrence.—" An improved " process to be used in the bleaching of linen or cotton yarn or

" cloth." This invention consists in the use and application of " alkaline sulphuret " in the process of bleaching, in substitution for potash. A ley is prepared by dissolving in water " eight Winchester bushels of lime, and about fifteen hundredweight of the " sulphuret," and then reducing the filtered liquor to about the same density " as the bleacher uses his potash leys." The Patentees prefer to boil the yarn or cloth first in the prepared ley, then to sour, wash, and steep in oxymuriatic acid. Then to boil again in the prepared ley, and follow up with the same kind of steeps as before, " without any exposure to the atmosphere, till a perfect " white is obtained."

[Printed, 3*d*. See Repertory of Arts, vol. 2 (*third series*), p. 26; London Journal (*Newton's*), vol. 7, p. 241.]

A.D. 1824, February 7.—Nº 4898.

CONGREVE, Sir William.—" An improved method of stamping." It consists of the following mode " of stamping paper, " vellum, leather, or other suitable substance, so as, in one single " impression, to unite with the embossed work usually given in " stamping, the most beautiful and delicate printed figures, either " in one or more coloured inks, or in silver or gold." To overcome the known difficulty of producing on dry and sized paper embossed work in high perfection, along with delicate printing, " I have found it necessary not only to use a press of very great " power, but to impress the paper between two metallic surfaces or " other hard suitable substances, instead of between a metallic and " leather surface, as in common stamping. The force or counterpart of the die must, therefore, be a permanent impression, and " not a temporary one, as in the common mode. Thus a steel die " requires a copper force, which must in the first instance be " struck as a model from the die." " In stamps and other securities of high value I unite the register of different colours with " that of the embossed work, by means of my compound plate or " die, which is already the subject of a patent, and thus add a " further combination of difficulty to the forger."

[Printed, 3*d*. See Repertory of Arts, vol. 6 ((*third series*), p. 141; London Journal (*Newton's*), vol. 8, p. 121.]

A.D. 1824, March 20.—Nº 4922.

KIRK, Rupert.—" A new method of preparing or manufactur" ing a certain vegetable substance used as a dye, called safflower,

" so as more effectually to preserve its colouring principle from " decay or deterioration in its passage from the place of its growth " to Europe." The colouring matter of the carthamus is extracted at the place of its growth by the common method used by dyers, and transferred by dyeing on to raw cotton, wool, hemp, flax, &c. The cotton so dyed is dried and sent to this country, where it is discharged of its colour, and the colour used by transferring it to silk and other goods " by well-known processes of discharging and " transferring said red color of various shades and intensities."

[Printed, 3*d*. See London Journal (*Newton's*), vol. 8, p. 66.]

A.D. 1824, October 7.—N° 5011.

BUSH, Mathew.—" Improvements in machinery or apparatus " for printing calicoes and other fabrics." The Patentee claims in this invention " the use and employment of repeating printing " cylinders or rollers, and which are adapted to move or travel " over the piece of calico or other fabric, carrying along with them " the colour trough and furnishing apparatus, so as to print or " repeat the impression from the circumference of the said printing " cylinder or roller upon the piece of calico or other fabric." " My repeating printing cylinders or rollers may be applied and " put in motion in a variety of ways, which must be left to the " discretion of the workman or persons adopting the same." " This printing (repeating) cylinder is turned cylindrical throughout the part where the design or pattern is engraved upon it, " beyond which point it is turned down to a cone, diminishing in " size nearly to the diameter of its pivots." " The pivots of the " said cylinder are adapted to turn in bearings formed at the " lower ends of the frame. The colour trough is composed of two " end pieces, of a triangular form, which are united firmly together " into a kind of frame by four cross bolts." This repeating roller is intended to print across the piece, instead of along it, and may be fitted in a frame, to which is also attached the colour box, which is caused to slide in grooves from one side of the piece to the other. After each printing the fabric is caused to move forward the exact length of the cross impression thus given.

[Printed, 1*s*. 8*d*. See London Journal (*Newton's*), vol. 11, p. 337.]

A.D. 1824, November 25.—N° 5042.

WILSON, Stephen.—" A new manufacture of stuffs, with trans- " parent and coloured figures, which I call diaphane stuffs." I "cause a chain or web to be warped with great care of any number of threads required, and I mount it in a loom in the usual way, of the width of the work intended to be made Instead of leismes or selvidges I make use of a cord or edge thread at about one inch from the edge of the work, strong enough to retain the shoot, similar to a fringe. I then weave with a coarse thread of cotton, flax, or other material, which I strike up so as scarcely to touch each other, but which, however, binds all my threads from distance to distance, and devides them, and forms a fabric or cloth, and which must be kept very straight and perfectly stretched on the breast roll. I then print this stuff in the usual way of printing as it comes off the roll, and steam it or otherwise fix the colours, and afterwards wash or bettle it, as it may require, to wash out the gum, or other superfluous coloring matter." It is afterwards woven in the loom, and while it is being woven the above cross threads or shoots are cut and drawn, similarly to drawing out the rods in weaving Brussels carpeting or terry velvet. Descriptions of various kinds of weaving are given in this Specification.

[Printed, 4*d*. See London Journal (*Newton's*), vol. 11, p. 343.]

A.A. 1825, January 14.—N° 5082.

LOCKETT, Joseph, the Elder.—"Improvements in producing or manufacturing a neb or slot in the roller, shell, or cylinder, made of copper or other metal, used in the printing of calico, muslin, cotton, or linen cloths."

The improvement in this patent consists in raising a "solid neb or slot in the inside of the roller," which is accomplished by subjecting the plain roller, placed on a maundrel, with a groove cut in it of proper size, to great mechanical pressure. The copper is forced into or raised and fills the groove cut in the maundrel, thereby producing a corresponding neb on the roller. The mechanical force or power usually applied is the same as employed in fashioning the blocks or ingots of copper into printing rollers.

[Printed, 3*d*. See London Journal (*Newton's*), vol. 10, p. 364.]

A.D. 1825, January 18.—N° 5084.

CHURCH, William.—"Improvements in casting cylinders, tubes, and other articles of iron, copper, and other metals." "These improvements consist in the combination of apparatus

" by which I am enabled to exhaust the mould (of air) and to " preserve it in an exhausted state; and also to allow the " melted metal to flow gently into the mould, and by which " apparatus I am likewise enabled to give any desired pressure " (by means of condensed air) while in a fluid state, and thereby " produce a more perfect casting." The mould for casting cylinders or rollers or other articles " consists of a hollow cylinder " of iron with flanges at the ends, the interior being bored or " otherwise truly formed to the figure of the intended cylinder " or roller about to be cast; an outer case or jacket surrounding " the mould and leaving a space for the introduction of cold " water by means of a pipe and tap." In the upper part of the cap, a small channel is made with a conical valve, to which is attached a pipe with a stopcock, which communicates with an air pump, by which the mould is to be exhausted. At the lower end there is also a pipe to admit the melted metal. The whole is then placed on the pan full melted metal, into which the lower pipe enters, and the joint made perfectly air tight. Through the lower flange of the cap there is a small aperture with a short piece of pipe attached to it; and, this pipe being made to communicate with the air-pump, the air is compressed on the surface of the melted metal which is forced upwards into the mould. The mould being already exhausted the metal freely enters, " producing a casting more perfect, sound, and free from air " holes, and at the same time more compact and uniform in " texture than such castings have heretofore been."

[Printed, 5*d*. See Repertory of Arts, vol. 6 (*third series*), p. 269; also vol. 1 (*third series*), p. 271; London Journal (*Newton's*), vol. 11, p. 230; Mechanics' Magazine, vol. 6, p. 209; Register of Arts and Sciences, vol. 4, p. 117; Engineers' and Mechanics' Encyclopedia, vol. 1, p. 558.]

A.D. 1825, February 26.—N° 5110.

ATTWOOD, THOMAS.—"An improved method of making a " nib or nibs, slott or slotts, in copper cylinders or cylinders of " other metal, used for printing cottons, linen, silk, &c." The cylinder is bored through of one diameter, and is again bored with a larger tool to within a few inches of one end. This leaves a collar on the internal surface at one end, parts of which are cut away leaving protuberant pieces that are called nibs. Slots are cut in the maundrel at one end to correspond with the nibs. At the other end of the roller similar slots are cut in its internal surface, and corresponding nibs are left on the maundrel to fit such slots.

[Printed, 5*d*. See London Journal (*Newton's*), vol. 10, p. 307.]

A.D. 1825, March 29.—N° 5139.

BAKER, James Hanmer.—"Improvements in the art of dying "and calico printing by the use and application of a certain "vegetable material, or certain vegetable materials." The dye referred to is obtained from the whole or every part of the cocoanut tree, but more particularly from the husk which incloses the nut and the foot stalks of the leaves. The dye is extracted by cold or boiling solution in water alone, or assisted by the addition of lime, potash, ammonia, or other alkaline substance, and is used in dying nankeens, blue blacks, &c. in the ordinary way, on cloth mordaunted in the usual manner. The infusion may be used as a substitute for nutgalls in the Turkey red process.

[Printed, 4*d*. See Repertory of Arts, vol. 2 (*third series*), p. 318; London Journal (*Newton's*), vol. 11, p. 196; and Register of Arts and Sciences, vol. 4, p. 40.]

A.D. 1825, April 20.—N° 5154.

WRIGHT, Lemuel Wellman.—"Improvements on machinery "or apparatus for washing, cleansing, or bleaching of linens, cot- "tons, and other fabrics, foods, or fibrous substances." These improvements may be effected by "first packing the things which "are to be washed in a close vessel [made of copper and formed "as the fustrum of a cone and with a false bottom] and then "forcing through them (by means of steam at 50 lbs. pressure) "an alkaline solution as soap and water, or a solution of pearl- "ash, soda, &c." After this I pass hot water through the said "articles for the purpose of cleansing away all the alkaline "matter. And, lastly, I force steam of a high pressure through "them for the purpose of removing the water and drying the "cotton, linen, &c." "In bleaching I adopt a similar process, "but in addition to this, and the employment of the usual "chemicals, I introduce a current of cold air [after each operation, "by means of a blowing-machine,] which greatly assists in "giving whiteness to the fabric."

[Printed, 7*d*. See Repertory of Arts, vol. 7 (*third series*), p. 200; London Journal (*Newton's*), vol. 11, p. 225, also vol. 13 (*conjoined series*), p. 371; Register of Arts and Sciences, vol. 4, p. 129; Engineers' and Mechanics' Encyclopedia, vol. 1, p. 173; Webster's Reports, vol. 1, p. 575; Webster's Patent Law, p. 139, case 148; Carpmael's Reports on Patent Cases, vol. 2, p. 519.]

A.D. 1825, June 21.—N° 5195.

BROOKES, Philip.—“An improvement in the preparation of a certain composition, and the application thereof to the making of dies, moulds, or matrixes, smooth surfaces, and various other useful articles.” “These improvements apply firstly, to the manufacturing and preparing of dies, moulds, matrixes, or stamps, of a certain combination of siliceous, argillaceous, calcareous, vitrescent, and barytic earths, or other natural earthy compounds, as granite, felspar, clays, marls, flint, cank stone, or any other material used by potters, which dies, moulds, matrixes or stamps, as aforesaid, undergo a certain degree of vitrification by heat, then to be used and applied for the purpose of embossing, by stamping or otherwise, representations or resemblances of figures, vases, buildings, ruins, and all other fancy and ornamental subjects, articles, matters, or things, in paper, leather, horn, Bristol board, millboard, bone, tortoiseshell, ivory, imitation pearl, papier mâche, composition, cement, or paste.” “In the second place, for manufacturing and preparing a certain combination of siliceous, argillaceous, &c., or any other material used by potters, into tabular plates with smooth surfaces, resembling tiles or slates, by means of mechanical pressure between metallic blocks, which artificial slates or tiles are to undergo a certain degree of vitrification by heat, and to be used and applied for the purpose of drawing, writing, printing, and painting upon with black lead, chalk, crayons, water-colours, oil-colours, or any other material used by painters; also, for manufacturing and preparing by means of mechanical pressure between metallic blocks, and by the subsequent application of heat, slates or tiles with smooth surfaces, vitreous or absorbent, with enamelled surfaces of the above-mentioned materials used by potters for the purpose of enamel painting, guilding, &c.; also, for manufacturing and preparing of the last-mentioned materials by means of mechanical pressure between metallic blocks, and by the subsequent application of heat, smooth surfaces to be used and applied either with or without a coating of glaze for chimney pieces and all architectural purposes for which they are adapted.” (See Abridgments on these subjects.)

[Printed, 3*d*. See London Journal (*Newton's*), vol. 11, p. 88.]

A.D. 1815, July 26.—N° 5225.

RICHARDSON, David Oliver, and HIRST, William.—" Certain improvements in the process of printing or dying woollen and other fabrics." This invention consists in covering parts of woollen fabrics with a composition which will resist the boiling dye. This reserve composition is made of five stones of flour beat up in four gallons of water, which after standing two or three days is mixed with the white and yolks of forty eggs. After dyeing, the composition may be scraped off without difficulty.

[Printed, 3*d*. See Repertory of Arts, vol. 3 (*third series*), p. 257; and London Journal (*Newton's*), vol. 11, p. 362.]

A.D. 1825, November 8.—N° 5285.

GIROUD, Charles Louis.—" A chemical substitute for gall " nuts in all the different branches of the arts or manufactures in " which gall nuts have been accustomed or may hereafter be " used." This is for extracting from the chesnut tree, nut, or fruit, by steeping and boiling a decoction which may be evaporated to dryness if required or formed into cakes. This extract he calls " Damajavag." A very pure damajavag may be also extracted from the sap of the chesnut tree.

[Printed, 3*d*. See London Journal (*Newton's*), vol. 14, p. 314; Engineers' and Mechanics' Encyclopædia, vol. 1, 428; and Register of Arts and Sciences, vol. 1 (*new series*), p. 359.]

A.D. 1825, December 14.—N° 5311.

FERRIS, Mathew.—" These improvements on presses or machi" nery for printing cotton and other fabrics are applicable to that " kind of press which is now used by calico printers to print from " engravings made on the flat surfaces of copper." The first improvement is to cause the plank and plate to move backwards and forwards upon its rails and rollers without requiring any manual assistance from the workman. " For this purpose," says the Patentee, " I fix a pin into one of the arms of the star wheel at a " distance from the centre of the wheel, so that the said pin shall " be carried round by the motion of the star wheel and D roller." To this pin is attached a rod connected with levers which communicate the backward and forward movement to the plank and plate.

The second improvement is for turning the edge of the doctor upwards when the plate comes outwards, and also to turn the edge down again in order that the doctor shall be ready to scrape the plate as it is moved in backwards. For this purpose a short lever or crank is fixed on the end of the pivot upon which the doctor is poised, and a pin, fixed in its end, is inserted into a semicircular groove formed in a semicircular plate which is fixed upon one end of a short axis placed exactly in a line with the pivot of the doctor; on the other end of this axis is a crank which is connected by a rod with another crank on the axis of the D roller; the revolving of the D roller thus gives the upward and downward movements to the doctor.

The third improvement is to fix on the D roller a wooden plank or planks, and on these to fix copper plates engraved upon the exterior surface ("which is correctly formed to a portion of a " cylinder corresponding to the axis of the D roller"), " in order " to print or fill up the impression made by the flat plate by the " successive application of other engraved plates or blocks with " other colours upon the same parts of the calico." These plates are supplied with colour from the colour box and furnishing roller placed beneath.

The fourth improvement is to cause the D roller to vibrate or move alternately backwards and forwards by means of a very strong arm or lever fixed upon the axis of the D roller, and to the extremity of such arm a long connecting rod is jointed attached at the other end by a pin to a crank worked by the mill gearing.

[Printed, 11*d*. See London Journal (*Newton's*), vol. 14, p. 304.]

A.D. 1826, February 18.—N° 5337.

BUFFUM, Arnold.—" Improvements in the process of making " or manufacturing and dyeing hats." These improvements consist in the " constructing, applying, and using, in the process of " dyeing hats, a wheel fitted with pins, bolts, screws, or hooks, on " one or both of its sides, to hang hats upon, and in placing or " suspending the said wheel partly in and partly above the dye " pan, in a perpendicular position, in such manner that when one " or both of its sides are covered or partly covered with hats, and a " gentle revolving motion given to the wheel, the hats are alternately changed from the dye liquor to the air ;" or, " instead of " the above-mentioned wheel, although for the same purpose, a " rack, fitted with pins, bolts, screws, or hooks, on one or both of " its sides, to hang hats upon; and in suspending the same in a

" perpendicular position in and over the dye pan, by any of the " means used for raising and lowering heavy bodies, in such " manner that when its sides are covered or partly covered with " hats, it may be alternately lowered into the dye liquor and " raised again into the air, where the hats will, without handling, " be exposed to the action of oxygen, in the same manner as when " on the wheel."

[Printed, 3*d.* See London Journal (*Newton's*), vol. 14, p. 15; Register of Arts and Sciences, vol. 1 (*new series*), p. 212.]

A.D. 1826, August 1.—N° 5396.

DAVIDSON, William.—" A process or processes for bleaching " or whitening bees wax, myrtle wax, and animal tallow." " I combine liquefied bees wax, myrtle-wax, or animal tallow, with oxymuriate of lime, oxymuriate of magnesia, or an aqueous solution " of either of them, by stirring the same with a wooden or other " spathula, or otherwise, in any suitable vessel, and I decompose " these salts by some acid which has a greater affinity for the " lime or magnesia than the oxymuriatic acid, such, for instance, " as sulphuric acid." The bees wax, &c., may be melted in an iron or other vessel, and then combined with a suitable quantity of a solution of oxymuriate of lime in water and dilute sulphuric acid. " The mixture is to be boiled until the lime is completely " separated from the oxymuriatic acid.

[Printed, 3*d.* See Repertory of Arts, vol. 3 (*third series*), p. 259; London Journal (*Newton's*), vol. 12, p. 239; Register of Arts and Sciences, vol. 4, p. 339; Engineers' and Mechanics' Encyclopædia, vol. 2, p. 867.]

A.D. 1827, February 14.—N° 5463.

CHRIST, John George.—" Improvements in copper and other " plate printing." This invention is performed as follows:—" I " take one pound of clean parchment cuttings, a quarter of a " pound of isinglass cuttings, and a quarter of a pound of gum " arabic, and put these ingredients altogether in twenty-four quarts " of clean spring or rain water, and boil the mixture in a common " iron or other pot till it is reduced in quantity to twelve " quarts, which I then strain through a flannel bag. The size being " thus prepared I divide it into three portions of four quarts each; " to one of the said portions, which I designate as No. 1, I add, " while the size is at or just under a boiling heat, ten pounds of " the finest and purest chemical white lead, previously ground

" fine, with a little cold water, and stir the whole together while " warm till it assumes the appearance of an even-coloured fluid, " which, when milk warm and kept stirred, will be fit for use." " To the portion No. 2 I add eight pounds of the like white lead, " and to the portion No. 3 I add six pounds of the like white lead " in the same manner. I then lay a sheet of white paper smoothly " on a board, and with a common painter's brush I lay a thin " coat of No. 1 evenly over the surface of the paper, and set it " aside to dry for twenty-four hours; at the end of this time lay " on a coat of No. 2, and again in the same time lay on a coat of " No. 3, and then set it aside to dry." Any required tint may be given to the mixture by adding the desired colour to the white lead. The surface of the paper having been thus glazed or enamelled, being placed on a smooth iron press board the (printing) plate is applied and the impression drawn off in the usual manner. After twenty-four hours the paper with the impression downwards is placed " on a plate of finely polished steel and passed several " times through the press with a strong pressure, which gives it " the last and highest polish."

[Printed, 3*d*. See Repertory of Arts, vol. 8 (*third series*), p. 51; also vol. 6 (*third series*), p. 254; London Journal (*Newton's*), vol. 1 (*second series*), p. 229; Register of Arts and Sciences, vol. 1 (*new series*), p. 83; Engineers' and Mechanics' Encyclopædia, vol. 1, p. 470; Patent Journal, vol. 2, p. 582; Webster's Reports, vol. 1, p. 83; Webster's Patent Law, pp. 27, 47, 67, 88, and 108; (also p. 132, case 90); Carpmael's Report's on Patent Cases, vol. 1, p. 463; Russell's Reports, vol. 5, p. 322.]

A.D. 1827, March 27.—N° 5479.

BUSH, Mathew.—" Certain improvements in machinery or " apparatus for printing calicoes and other fabrics." Instead of using in roller printing one large bowl and one travelling blanket, upon which two or more rollers print at one time, there is here a smaller bowl and a separate blanket for each roller. Between the bowls are placed steam cases to partially dry the colour between the impression of one roller and the next. To complete the drying the blankets and cloth are passed over hollow metal boxes, now called " steam chests." The ordinary blocking table is improved by adding a rachet wheel and click to the rollers upon which the cloth is wound before and after printing, by which means the cloth on the table can be stretched to the desired length. There is also an additional spring stretcher at one end of the table.

[Printed, 1*s*. 5*d*. See London Journal (*Newton's*), vol. 6 (*second series*), p. 16.]

A.D. 1827, March 31.—N° 5480.

WOODCROFT, Bennet.—" Certain processes and apparatus " for printing and preparing for manufacturing yarns of linen, " cotton, silk, woollen, or any other fibrous material."

The yarn to be printed is beamed on four beams and placed behind the printing machine; from these it passes through a reed and then under the printing roller, where it is impressed with the desired pattern. It passes on to the drying chests and when partially dry is separated into single threads again by rollers and reeds; the drying is then completed by passing the yarn over more steam chests, and it is finally wound on a beam. From this beam the yarn is unwound and divided into six portions and put on six smaller beams. From these smaller beams it is reeled into hanks in the usual manner.

[Printed, 2*s.* 7*d.* See London Journal (*Newton's*), vol. 1 (*second series*), p. 32, also vol. 18 (*conjoined series*), pp. 131, 208, 263; Register of Arts and Sciences, vol. 2 (*new series*), p. 373; Webster's Reports, vol. 1, p. 740; and Moore's Privy Council Cases, vol. 3, p. 172.]

A.D. 1828, January 2.—N° 5597.

HALL, James, Junior.—" Improvements in dying piece goods " by machinery." These improvements consist of an oblong square cistern which contains the dyeing liquor. Placed in the cistern towards the bottom are two rollers, the axes of which at one end come through the cistern and are supplied with driving wheels outside. The fabric to be dyed is attached to one of these rollers by means of an " end cloth;" and when the wheel is set in motion is wound on that roller, and thereby caused to pass through the dye liquor. In the cistern are several other smaller rollers round which the fabric passes, thereby exposing it more to the action of the dye. When the fabric is entirely wound on the first roller, the other end of it is attached to the other roller, also by an end cloth; the motion of the wheels is then reversed, and the fabric wound on the second roller. In its progress it is again caused to pass over and under the small rollers. When the dyeing is completed the fabric is wound on a third roller, placed for the purpose at the end of the cistern and out of the liquor. Over the cistern are placed two squeezing rollers, which may or may not be used during the process of dyeing.

[Printed, 6*d.* See London Journal (*Newton's*), vol. 7 (*second series*), p. 149; Register of Arts and Sciences, vol. 2 (*new series*), p. 260; Engineers' and Mechanics' Encyclopedia, vol. 1, p. 459.]

A.D. 1828, January 15.—N° 5606.

HARRIS, George Daniel.—" Improvements in dressing and " preparing woollen yarn, and in cleansing, dressing, and finishing " woollen cloths and other fabrics, and in the apparatus for per- " forming the same." These improvements consist, first, in the mode of bleaching or scouring woollen yarns, cloths, and other fabrics by means of the application of a vacuum, and of pressure to the liquids used during the process, such as soap, alkalies, and acids. The goods to be operated upon being placed on a faulse bottom in an air-tight vessel, the air is withdrawn by means of a pump till a vacuum is arrived at. The heated potash or alkaline liquor may then be allowed to flow into the vessel and saturate the goods. When the hot liquor has been thus introduced the atmospheric air is admitted into the vessel, and its pressure forces the liquid into the pores. This pressure may be increased by means of an " ejecting pump, so as to condense a " volume of air upon the surface, or by hydraulic pressure." The false bottom of the keir or vessel should be moveable, so that it can be elevated by means of a rod passing through the bottom, and a lever working outside; and carrying up with it the goods will compress them against the cover of the keir, and thereby express the excess of liquor. The goods may be washed in the keir or vessel, and afterwards treated in a similar manner with dilute acid. This invention further relates to dressing and finishing cloth by the application of sponges to the ordinary gig mill or other rotatory machinery for the purpose of wetting the cloth more uniformly; and also to the application of caoutchouc impregnated with fine grits, such as emery powder, steel filings, pounded glass, or other hard granulated substances, to the carding or dressing and finishing the pile or nap of cloth. [See Abridgments on Gutta Percha and India-rubber.]

[Printed, 7*d*. See London Journal (*Newton's*), vol. 6 (*second series*), p. 258; Rolls Chapel Reports, 7th Report, p. 127.]

A.D. 1828, January 26.—N° 5613.

APPLEGATH, Augustus.—" Certain improvements in block printing." Instead of printing on one long table there is here used a series of small tables, each of the size of a handkerchief. A square frame on hinges is let down on the handkerchief, and holds it fast while the printer applies his block. The frame acts also as a guide to the block.

[Printed, 5*d*. See Repertory of Arts, vol. 8 (*third series*), p. 463; London Journal (*Newton's*), vol. 4 (*second series*), p. 40; and Register of Arts and Sciences, vol. 4 (*new series*), p. 185.]

A.D. 1828, February 21.—N° 5620.

BENTLEY, DAVID.—"An improved method of bleaching, and " improvements in machinery adapted for bleaching and finishing " linen or cotton yarn and goods." "In my improved method I " stitch the goods together in batches containing any convenient " number of pieces, previously to singeing them in the usual way, " and I keep them in that state during the process of bleaching. " When singed I steep them by passing them under a roller in a " cistern containing hot water or spent ley; and being then steeped " in batches, I allow them to remain for fermentation, if time will " permit, after which they are ready for passing through the process of bleaching (one batch being fastened to another) according " to my improved method." The apparatus for effecting this new mode of bleaching may consist of a calendar with three bowls, under which are placed two cisterns, divided into compartments, for containing the water or liquor used. The pieces sewed end to end, or skeins of yarn fastened or looped together, are caused to pass between the bowls, and to descend into the water, and there passing round a roller, to ascend and again pass between the bowls. The bowls may be weighted so that the soiled liquor may be pressed out of the fabric. Racks or pegs are attached to each cistern on the side on which the fabric rises, by means of which it is caused to traverse in a spiral direction regularly and continuously from one end of the bowls to the other, and thereby be washed and squeezed thirty times. This calender washing machine may be used in the process of bleaching, also for limeing, souring, and passing the fabrics through leys, as well as washing. Or, instead of using a calender, through which the fabrics are caused to pass spirally from end to end, as described, the machine may consist of a series of sets of rollers arranged parallel to each other, and placed over and in a long cistern containing the liquor used, divided into as many compartments as there are sets of washing rollers. The fabric may be passed between and round these rollers in an open or distended state, and thereby be washed or treated with liquors as above.

The Patentee also claims the construction of "calender rollers," "to be used in bleaching and finishing," by substituting for paper or wood a material called "waddings," which are made by machinery well known among cotton manufacturers. These waddings are made either of cotton or linen in a waste state. "The "waddings, if made with care, will be of such equal thickness, "strength, and substance that they may be cut into circles or "segments of circles and placed upon or round metal centres, "observing to lay the different folds straight, crossing all the "joints, and laying the points of the staples as much outward as "possible. The roller will thus be of equal hardness, and must "be pressed together with metal end plates, and fastened or held "with circular keys, as is now done with paper rollers. It must "be turned in a lathe to a fine face, and will be found durable, "hard, smooth, and cheap."

[Printed, 10*d*. See London Journal (*Newton's*), vol. 7 (*second series*), p. 285.]

A.D. 1828, December 15.—N° 5739.

MORFITT, John.—"An improvement in retorts used by "bleachers and makers of oxymuriatic acid or oxymuriate of "lime." "This improvement consists in applying a lining of "glazed earthenware withinside of the lead retort, so as to extend "all round the interior upright sides thereof, and reaching from "the bottom of the retort to a greater height than the level at "which the surface of the liquid and other matters within the "retort are intended to stand; the said lining of glazed earthen"ware being so applied withinside the lead retort as to prevent the "liquid and other matters contained in the retort from coming in "direct contact with the lead whereof the upright sides of the "retort is composed." The Patentee prefers to make the lining of clay suitable for making fire bricks.

[Printed, 5*d*. See Repertory of Arts, vol. 8 (*third series*), p. 743, also vol. 9 (*third series*), p. 208; London Journal (*Newton's*), vol. 4 (*second series*), p. 341.]

A.D. 1829, April 23.—N° 5782.

COOK, Benjamin.—"An improved method of making rollers "or cylinders of copper and other metals, or a mixture of metals, "for printing of calicos, silks, cloths, and other articles." Instead of making the mandrils or axles of the improved printing rollers, circular and slightly conical, they are shaped elliptical or otherwise excentric, and slightly tapered. The ingot of copper being bored and placed on this mandrel, and drawn in the usual way to the form and size required, causes the shell to form itself internally elliptical or excentric, corresponding to the figure of the mandrel. The outer surface is then turned perfectly true and cylindrical.

[Printed, 3*d*. See Repertory of Arts, vol. 9 (*third series*), p. 391; London Journal (*Newton's*), vol. 4 (*second series*), p. 133; and Register of Arts and Sciences, vol. 4 (*new series*), p. 124.]

A.D. 1829, September 15.—Nº 5849.

COBB, THOMAS.—"Improvements in the manufacture of paper " intended to be applied in the covering of walls or the hanging " of rooms, and in the apparatus for effecting the same." These improvements consist, first, in printing tinted paper during its manufacture, and before it is dry, by means of printing cylinders, one or both of which may be engraved, and supplied with suitable colouring matter, or by means of printing blocks.

Secondly, in giving to tinted paper a shining appearance "resembling silk." The paper may be twilled or ribbed by rollers during its manufacture, and when dried and sized, or otherwise, it is caused to pass between rollers, one or both of which are engraved with the required pattern; and one at least of them heated, "so that the impression obtained may be stronger and " more shining."

Thirdly, two or more thicknesses of paper of the desired thickness, qualities and colours, may be united "during the process of " making, or afterwards" by introducing between them suitable " glutinous substances." Paper so formed may be passed through the embossing cylinders.

Fourthly, "plain or figured silks, sattins, velvets, cottons, " linens, or other fabrics," may be united to paper by introducing " any glutinous substance between them; and when so united, if the article is plain and wanted to be figured, "I rib or twill it, " and emboss it with any pattern required, as before described." Fabrics so decorated are suitable for ornamenting walls. An effect called "watering" may be produced by pressing and "bruising" two thicknesses or pieces together between heated rollers.

Fifthly, in the apparatus for uniting the papers, or papers and fabrics together. This apparatus consists of a brush or roller revolving against a furnishing roller placed in a trough of size, which applies the size to the surface of the paper as it passes round a drum. The other thickness of paper or fabric is then brought in contact with the surface of the sized paper, and both proceed together under a pressing roller.

[Printed, 6*d*. See Repertory of Arts, vol. 10 (*third series*), p. 32; London Journal (*Newton's*), vol. 6 (*second series*), p. 253; Rolls Chapel Reports, 7th Report, p. 131.]

A.D. 1830, February 12.—N° 5902.

DU BUISSON, Joseph Marie Ursule La Rigaudelle.—" A new method of extracting, for the purpose of dying, the " colour from dye woods, and other substances used by dyers." Instead of the dye wood being put into water and boiled, it is placed in a closed box, into which steam is admitted, in order to extract the colour from the dye wood. The liquor produced by the condensation of the steam escapes through a pipe at the bottom of the box, and runs into a flat boiler (heated by steam) where it is evaporated down to the desired strength.

[Printed, 5*d*. See Repertory of Arts, vol. 9 (*third series*), p. 286; London Journal (*Newton's*), vol. 3 (*conjoined series*), p. 137; and Register of Arts and Sciences, vol. 5 (*new series*), p. 7.]

A.D. 1830, May 24.—N° 5938.

BUSH, Mathew.—" Improvements in machinery or apparatus " for printing callicoes and other fabrics."

The first of the improvements referred to is for applying several stretchers at each end of an ordinary block printing table, worked by handles and levers, whereby the piece may be stretched equally across, or one part stretched more than the other.

Second, the application of the Patentee's short cylindrical roller and colour trough, patented 7th Oct. 1824, N° 5011, to the filling in and fitting of other colours, whether laterally or longitudinally.

Third. The Patentee applies an additional blanket to his flat press machine, patented 15 January, 1813, N° 3639. The press has thus one blanket, and the boys who put in the other colours with the large blocks have another. This part of the invention also includes the employment of moveable malls or knockers, wherewith the boys can strike on the backs of the blocks to give the proper impression.

[Printed, 2*s*. 5*d*. See London Journal (*Newton's*), vol. 7 (*conjoined series*), p. 336; and Register of Arts and Sciences, vol. 5 (*new series*), p. 225.]

A.D. 1830, July 19.—N° 5955.

COWPER, Edward, and COWPER, Ebenezer.—" Improve-" ments in printing machines." This invention consists of two parts. First, " in the means of distributing the ink upon a drum " or cylinder revolving in fixed bearings," as applied to letterpress printing.

Secondly, " of the method of attaching the printing cloth or " blanket to the printing cylinder," (commonly called in plate press printing the " bowl"). " The printing cylinder is formed " with two recesses, in each of which we fix a roller of wood or " metal, turning in carriages fixed to the cylinder at each end of " the recess, or we make only one recess in the cylinder and put " both rollers into it; or the rollers may be placed within the print-" ing cylinder, allowing the cloth to run through a narrow opening " or slit in the cylinder. One end of a long piece of printing " cloth (or other fabric) is fixed to one roller, and the other end is " fixed to the other roller; there is a small ratchet wheel on the " spindle of each roller, and a click or pall (fixed on the carriage " or cylinder) falls into the ratchet; when the cloth is first put on " it is wound up on one roller as far as it will go, and retained " there by the click and ratchet. When the cloth becomes black-" ened by use, or begins to " set off," a portion of the cloth is " unwound from one roller and wound up on the other. The " ends of the spindles of the rollers are square and are turned by " a loose handle or key."

[Printed, 6*d*. See Repertory of Arts, vol. 1 (*new series*), p. 92; London Journal (*Newton's*), vol. 2 (*conjoined series*), p. 19; Mechanics' Magazine, vol. 15, p. 61; Register of Arts and Sciences, vol. 5 (*new series*), p. 289; Engineers' and Mechanics' Encyclopædia, vol. 2, p. 346.]

A.D. 1830, August 31.—N° 5988.

APPLEGATH, Augustus.—" Certain improvements in print-" ing machines." The first part of this invention consists " in " the curving or bending of a flat copper or other metallic plate " for the purpose of printing an engraved pattern, and also the " right of printing with such curved plate," in contradistinction to " the use of any kind of circular-shaped blocks or plates for " printing made of the form of the segment of a cylinder by " casting, turning, hammering, or any other way." The plate here referred to is " preferred to be about one-sixteenth or one-twentieth " of an inch in thickness, and carefully hammered to about the

" degree of hardness usual in calico printing." The curved form is given to the plate by laying it on a piece of hard wood covered with woollen cloth and passing the two together through the nip between the impression cylinder or bowl and the smaller part of the segment bed. The plate so curved is then "to be fixed upon " the holder bars of the segment beds by screws" and there to receive " an additional curvature (by hammering or otherwise) at " the fore or entering margin and at the hinder or leaving margin" to diminish the " bruise" and to assist the doctor in cleaning.

Secondly, consists of a " divided curved plate, or the division of " a curved plate, for printing a repetition of a pattern or design " across as well as along a piece of material." This may be effected " by causing the plate to move sideways across the piece of material, " or in causing the piece of material to move sideways across the " plate during the intervals of giving the impression, so that, " instead of engraving a plate in which the pattern is repeated to " the whole width of the material to be printed, the plate need " not be larger than one complete set or drawing of the pattern " or design, as the whole of the material is by the side motion " successively applied to the plate."

[Printed, 1*s*. See London Journal (*Newton's*), vol. 1 (*conjoined series*), p. 414; Register of Arts and Sciences), vol. 6 (*new series*), p. 16.]

A.D. 1830, November 1.—N° 6024.

COOK, Benjamin.—" Method of making a neb or nebs, slot " or slots, in shells or hollow cylinders of copper, brass, or other " metals, or mixture of metals, for printing of calicos, muslins, " cloths, silks, and other articles." The solid cylindrical ingot of metal is bored through at its centre or axis, or in a line slightly deviating from the centre. " In order then to form and " produce one or more neb or nebs, slot or slots, I cut away or " otherwise take out from the interior of the cylinder so bored as " aforesaid, either by means of a planing machine, or any other " proper and convenient filing or cutting tool or tools," " such " a quantity of metal as I may find necessary so as to leave one " or more nebs or slots projecting in the interior of the said " shell or cylinder of whatever size, shape, or form I may require, " and extending either throughout the whole length of the said " shell or cylinder or stopping short of the end thereof, and " leaving such a substance of metal uncut as may suffice to form a " collar or shoulder or inwardly projecting ring at the further end

" thereof; and such collar or shoulder is intended to be employed " as a stop or means for drawing out or extending the shell or " cylinder upon a mandrell to any length or size required."

[Printed, 5*d*. See London Journal (*Newton's*), vol. 8 (*conjoined series*), p. 411; and Register of Arts and Sciences, vol. 6 (*new series*), p. 79.]

A.D. 1830, December 6.—N° 6042.

DALGLISH, Robert, Junior.—" Improvements in machinery " or apparatus for printing calicos and other fabrics."

Two endless chains revolve with the blanket and cloth, and have belts or cross straps attached to them at fixed distances. These cross straps pass through the printing rollers on the face of the cloth, and protect it at these parts from being printed. Spaces are thus left on the cloth which by after processes may be filled with other colours.

[Printed, 9*d*. See Repertory of Arts, vol. 12 (*third series*), p. 19; London Journal (*Newton's*), vol. 7 (*second series*), p. 324; and Register of Arts and Sciences, vol. 6 (*new series*), p. 103.]

A.D. 1831, January 22.—N° 6066.

SCHWABE, Louis.—" Certain processes and apparatus for " preparing, beaming, printing, and weaving yarns of cotton, " silk, &c., so that any design, device, or figure printed on such " yarn may be preserved when such yarn is woven into cloth." This invention consists in the new arrangement and application of known apparatus for rebeaming, printing, and weaving the warp, so as to preserve the pattern. The yarn is rebeamed by the help of a " crumber board " and nails, and printed on a blocking table; great care being taken to keep the yarn straight. The yarn is then woven with the help of clasped healds, into cloth; and dyed and cleansed in the usual way.

[Printed, 10*d*. See Repertory of Arts, vol. 1. (*new series*), p. 84; London Journal (*Newton's*), vol. 4 (*conjoined series*), p. 76; Register of Arts and Sciences, vol. 6 (*new series*), p. 171; and Engineers' and Mechanics' Encyclopædia, vol. 2, p. 923.]

A.D. 1831, September 17.—N° 6162.

POTTS, John, OLIVER, Richard, and POTTS, William Wainwright.—" An improved method or process of obtaining " impressions from engravings in various colours, and apply-

" ing the same to earthenware, porcelain, china, glass, and other " similar substances," The paper used for this purpose is " of the " same nature as that generally used by manufacturers of earthen- " ware and glass, as the medium by which patterns in colours are " to be transferred to the articles intended to receive the same," and is sized through a sizing machine with size of the kind generally employed for this purpose. " The end of the sheet of paper " being passed between the rollers (which supply the size), is " brought up behind the second sizing roller, and appearing again " between that roller and the copper roller, is brought up on the " face of the latter, on which it will then continue to be lapped in " successive layers." " When the required quantity of paper is " thus sized, the receiving roller is taken off the spindles, and is " placed behind the cylinder of the printing machine." The printing is performed by the ordinary printing machine, but the engraved roller and colour box are heated by steam; and the colours used are such as are generally used by the manufacturers of earthenware. " In applying the impressions thus obtained to earthenware " or glass to which the patterns or designs are intended to be " transferred, we cut out from the paper a piece of the dimensions " required and apply it to the surface in the method or methods " now in ordinary use."

" When the pattern or design required is such as cannot be " conveniently engraved on a copper cylinder," we adopt the flat plate and flat press in use among calico printers. " This we effect " by substituting for the plank or board on which the copper plate " is commonly placed in calico printing an iron box or steam chest " of dimensions adapted to the engraved plate to be used." " The " colouring matter used with this flat press may be heated in the " color box with double bottoms."

[Printed, 7*d*. See London Journal (*Newton's*), vol. 1 (*conjoined series*), p. 126; Register of Arts and Sciences, vol. 7 (*new series*), p. 142; Rolls Chapel Reports, 7th Report, p. 136.]

A.D. 1831, December 3.—N° 6194.

PAYNE, Cornelius March.—" Improvements in printing silk, " cotton, and other goods and fabrics." " These improvements " consist in the adaptation and employment of small plates or " cylinders, or parts of plates or cylinders, upon which the " patterns or only parts of the complete pattern are engraved, " which said plates or cylinders have, by my said improvements, "peculiar motions given to them, so that by repeated impressions "being taken from them, the complete pattern may be formed "on the piece of silk or other goods. And also, in improvements "in the construction of the presses by which the said plates "or cylinders are to be worked." The printing plate is engraved the breadth of half the piece of cloth to be printed, instead of the whole breadth, and is placed on the plank attached to the plank carriage. The plank carriage has a lateral movement in grooves, with two set or adjusting screws which limit the movement of the plank and plates, and regulate the joining of the pattern. The inking and printing is performed in the usual manner. "After giving the first impression, the plate is to be shifted "sideways along the plank carriage, where it may again be "supplied with color, and another impression taken from it." The sheet or fabric is then moved forward, and the third impression taken; the plate is then shifted back to its original position, and the fourth impression taken; which completes the filling up of the handkerchief. When the pattern of a handkerchief is engraved with a border on two of its edges, "this plate is "mounted upon a similar carriage as that described, but is "placed upon a second plank; this plank turns upon a pin "fixed into the under plank. The centre of this pin must be in "the centre of the quarter of the work engraved upon the plate; "and the plate must have a shifting motion sideways (as before), "and also a circular or turning motion round the pin, so as "to cause the four impressions of the quarters of the pattern to "join and form the complete handkerchief."

"My improved cylinders for printing silk or other piece goods "in cylinder presses, are made of one-half or any other proportion of the width of the goods to be printed, and may have "a quarter or half of the complete pattern engraved upon them. "Cylinders engraved in this manner will give the first and fourth "impressions as before described, and may be printed in continuance, that is from one end of the piece to the other, which "being done, the cylinder must be reversed in the press and "pushed up to the opposite end of the mandrill; it will then "print as the piece returns, on the other half of the width of the "goods, producing the second and third impressions, as described, "and thus complete the handkerchief."

[Printed, 1*s*. 11*d*. See London Journal (*Newton's*), vol. 1 (*conjoined series*), p. 225; Register of Arts and Sciences, vol. 7 (*new series*), p. 234; Rolls Chapel Reports, 7th Report, p. 137.]

A.D. 1832, May 3.—N° 6265.

HENDRIE, Robert James.—" A mode of improving dyed " silk." This invention consists in submitting skein silk which " has been dyed, and commonly known by the name of imperial " or blue black dounce, to the action of machinery similar to that " known by the term of fulling stocks" [or other mechanical modes] " while the silk is undergoing the process of washing and " cleaning." " When the silk is blacked in the usual way, and " ready to be washed and cleansed, which operation is now performed by hand, I roll up each washing handfull of the silk in " the usual manner, and inclose any required number so rolled " up in [canvas] bags twenty-four inches square." " And then " wash and cleanse it by the use of stocks, such as are used for " the purpose of washing and cleansing, or what is usually called " fulling woollen goods." " A stream of fresh water is kept " running during the whole process; and the feet of the stocks " constantly beat the silk, and turn it over until it is sufficiently " cleansed."

[Printed, 3*d*. See Repertory of Arts, vol. 14 (*third series*), p. 341; London Journal (*Newton's*), vol. 2 (*conjoined series*), p. 108.]

A.D. 1832, June 2.—N° 6270.

STEINER, Frederick.—" A certain process or processes by " which spent madder or madders, that have been previously used, " can be made to yield a great quantity of colouring matter, and " for dying with the same various colors all descriptions of cotton, " linen, wool, silk, or any mixture of them, and also for improving " for dying madders that have not been previously used." " I take " spent madder, either in a dry or wet state, such as have been " previously used by calico printers, Turkey red dyers, and other " dyers; I let them drain tolerably solid, and to one measure I " add four measures of diluted sulphuric acid of 1020 specific " gravity, and distilled water 1,000. I mix all well together, and " let it subside for more or less time; upon an average I allow " about six hours for it; then I draw off the surface liquor, and " wash the spent madder with water until the water or the surface " liquor comes off tasteless." The Patentee also claims, for the purpose of preparing such chemical madder more or less perfectly, the use of diluted solutions of any acid or acids, or by exposure to any of the volatile acid gas or gasses; or by the use of salts having the necessary acid properties. "To improve madder or "madders that have not been previously used (or fresh madders), "I soak or steep, or otherwise expose them to diluted acid solu-"tions or gases possessing the necessary properties. I prefer "using such acids as will, when brought into contact with certain "bases, form insoluble salts."

[Printed, 3*d*. See London Journal (*Newton's*), vol. 4 (*conjoined series*), p. 297.]

A.D. 1832, September 8.—N° 6307.

WHYTOCK, Richard.—"An improved method or manufacture "which facilitates the production of regular figures or patterns on "different fabrics, particularly velvets, velvet pile and Brussels, "Wilton, & Turkey carpets." This invention is for the printing of yarns before being beamed, and for the weaving of said printed yarns into cloths, velvets, carpets, &c. The yarn is wound care-"fully round the circumference of the large drum, and while there is printed with long blocks in stripes across; any number of stripes and colours may be applied that the circumference of the drum will admit of, the yarn is then taken off the drum and dried; after which it is steamed or dryed to fix the colour. The yarn is then wound on bobbins and beamed ready for the loom. Instructions are given as to the weaving of this party coloured yarn, and also precautions for keeping the coloured parts of the yarn in their proper places.

[Printed, 1*s*. 7*d*. See Repertory of Arts, vol. 15 (*third series*), p. 208; also vol. 8 (*enlarged series*), p. 111; and vol. 11 (*enlarged series*), p. 56, for extension of Patent; London Journal (*Newton's*), vol. 13 (*conjoined series*), p. 386, and vol. 28 (*conjoined series*), p. 449; and Mechanics' Magazine, vol. 29, p. 302.]

A.D. 1833, January 5.—N° 6356.

GRATRIX, William.—"An improved method of imparting to "various woven fabrics or to the yarns or threads of which the "same are intended to be composed, the colour necessary to form "the required patterns thereon." The improved method here referred to is for stencilling on cloth or yarn. The pattern to be printed is cut out of a plate of thin metal, tough paper, &c., and extended on a marginal frame; this is placed on the cloth or yarn and the colour is rubbed in by a brush; or the colour may "be "imparted by covering the interstices which form the pattern with "a piece of any kind of even material porous enough to imbibe a "proper quantity of colouring matter, and pressed through upon "the fabric or yarn either by means of a press or by striking a "few blows on a flat block placed thereon."

[Printed, 3*d*. See London Journal (*Newton's*), vol. 3 (*conjoined series*), p. 207.].

A.D. 1833, July 18.—N° 6450.

APPLEGATH, Augustus.—" Improvements in letter-press and "block printing, and in the machinery or apparatus used for the "same," consist, "first, in an improved method of arranging or "imposing the form of types, plates, or blocks, so that the said form "and the table of the printing machine (for letter-press printing) "may have less distance to travel in order to pass in contact with "the impressing cylinder.

"Secondly, in printing with two or more colours from the same "type or pattern," by one impression. "The block for this purpose "is made circular (of the form of a surface roller), and having the "pattern upon it in releif, either formed by types or plates, or cut "or raised in copper; upon its spindle is a toothed wheel which "works into (and is driven by) a toothed wheel upon the spindle "of the bowl." The colour feeders or rollers, of which there may be two or more, are of equal diameter, and of the same diameter, or an aliquot part of the diameter of the printing block, are covered with felt or stout woollen cloth, gummed or otherwise fixed, and each derives colour in the usual way from a furnishing roller working in a separate colour trough. The bowl, circular printing block, colour feeders, and furnishing rollers are caused to work simultaneously by intermediate gearing, and the motion may be continuous, or made intermittent by any of the usual means. Certain parts of the felt on the colour feeders are removed, so that no colour being supplied to these parts by the furnishing rollers none is transferred by them to the printing block. Corresponding alternate parts of the felt are cut away from each of the colour feeders, and thus the printing block is supplied with different colours on certain parts only. One colour feeder supplies one colour, and the other colours are supplied by the other colour feeders.

[Printed, 8*d*. See London Journal (*Newton's*), vol. 15 (*conjoined series*), p. 440.]

A.D. 1833, October 28.—N° 6496.

HULLMANDEL, Charles Joseph.—"Improvement in the "art of block printing, as applied to calico and some other "fabrics." This invention consists in an improvement in the process of block printing called "putting on." "Having pro- "cured an original pattern as drawn by the artist, I place upon "it a sheet of that transparent substance made from isinglass or "gelatine known by artists, and sold in Paris, by the name of "papier glacé, and in London by the name of glass paper; I "then take a fine sharp tracing point, and make a tracing of the "pattern in such manner as to form, in fact, an etching or in- "cised outline on the paper glace; this done, it will be found "that the tracing point has raised a slight burr on each side of "every line, this must be removed by a sharp scraper lightly "passed over the surface of the papier glace. When this is done "the papier glace is to be treated as an engraved copper plate, "and having been inked with printers' ink (what is termed a "'fatty' ink), and cleaned off in the usual way, an impression "must be thrown off from it upon thin oiled silk by means of "an ordinary roller press, care being taken that the papier glace "should be uppermost or next to the roller, and the oiled silk "undermost, or on the bed of the press. The impression thus "obtained on the oiled silk is to be turned down on the block, "and transferred to it by slightly rubbing it on the back; the "same piece of papier glace will give off a great number of im- "pressions."

[Printed, 4*d*. See Repertory of Arts, vol. 1 (*new series*), p. 361; London Journal (*Newton's*), vol. 7 (*conjoined series*), p. 90.]

A.D. 1833, November 23.—N° 6515.

LEGGETT, Henry Hardingham.—"Improvements in the "art of printing in colors." This invention consists, "first, in a "new printing ink, as applied to the purpose of printing in "colors, the required color to which is given by chemical re- "agents, as hereinafter explained." A decoction of logwood being prepared, a solution of acetate of copper is added to it "until the coloring matter sinks to the bottom of the vessel in "the form of a dark grey or blue black precipitate and the super- "natent liquor becomes clear and nearly colorless." "The super- "natent liquor is now drawn off by means of a syphon, and the

" precipitated coloring matter is to be laid upon a filter made of " fine cotton or woollen, that the remaining moisture may drain " off and evaporate, and it may thus be exposed to the air, in the " shade, until perfectly dry. The wood of the oxalpina crista, " commonly called Brazil wood, may be used or any vegetable " substances whose coloring matter will precipitate with any " metallic salts or oxides; but when a fine pink is required the " Brazil is to be preferred." "The above is to be used in all " respects as the common black with which printers' ink is " usually made, that is to say it is to be ground with such kind " of oil or other matter as is used," and to be printed with an engraved copper plate, &c. in the ordinary manner, "and then " such parts of the print as, if it were a painting, would be " coloured yellow, are to have a weak solution of vegetable acid " applied, or any other acid which will not injure the substance " upon which the picture or design is printed, or any acidulous " salts (such as bitartrate of potash)." For red or orange oxalic or other acid is to be applied. Such parts of the print to be coloured pink or crimson are to have sulphuric or other mineral acid applied; for lilac or violet apply a solution of nitro muriate of tin or a solution of alum; for blue apply bicarbonate of ammonia or other alkali; for purple apply bitartrate of potash or other vegetable acid, and afterwards a solution of alkali; and for other tints use other reagents. " Secondly, in the mode of applying the said reagents to prints or patterns printed with the said " ink." The reagents are applied by a common hair pencil, or by blocks prepared after the manner of those used for printing calico, silk, or paper; or the color is rolled in by a small cylinder of wood covered with batting, through a thin plate of metal having the pattern or part of the pattern cut out, as in stencilling. " Colors may be applied in the same way to prints taken with " ordinary printers' ink, in which case the tint or colour required " would be used upon the roller instead of the reagents before " described." " Lastly, in certain machinery as applied to the " purposes aforesaid." The machinery consists of "a large revolving drum or narrow cylinder on which are placed blocks to " receive the prints which are to be coloured." The paper being damped is placed on these blocks with the margins turned down at each side of the block, and as the blocks revolve they are brought successively under the metal sheet perforated with the pattern; this sheet is elevated and depressed by the lift frame.

The same movement elevates and depresses the colour roller, which is supplied with colour from two furnishing rollers, and when depressed on the surface of the metal plate is caused to roll along it and supply through the perforations the colour to the print.

[Printed, 1s. 4d. See London Journal (*Newton's*), vol. 17 (*conjoined series*), p. 279.]

A.D. 1834, March 31.—N° 6587.

DEVERILL, Hooton.—" A method of engraving and etching " on cylindrical surfaces for printing and other purposes." This is the application of the pentagraph to the engraving of rollers. There are five or more cutters or points, fixed in arms and weighted, which rest upon the surface of the copper roller. The roller is moved under these points to and fro by the combination of a rectilinear movement, given to it by the carriage on which it is placed, and a rotatory one, received from a cross sliding piece and chain and pulley. The moving power is the pentagraph, and the flat pattern at one end is thus transferred to the circular surface of the roller at the other.

[Printed, 10d. See London Journal (*Newton's*), vol. 17 (*conjoined series*), p. 372.]

A.D. 1834, April 8.—N° 6589.

HENDRICKS, Herman.—" Improvements in the process of " dyeing wool and woollen fabrics yellow." These improvements consist in " the application of the process of double decomposition " of the cromate of potash or the bicromate of potash or the " cromate of soda, and a soluble salt of lead to the process of dye- " ing wool and woollen fabrics." The process consists in immersing or passing the wool or woollen fabrics through a solution of acetate or or other salt of lead, and then through a solution of the chromate, at suitable degrees of strength.

[Printed, 3d. See London Journal (*Newton's*), vol. 17 (*conjoined series*), p. 373.]

A.D. 1834, June 14.—N° 6626.

BUSH, Mathew.—" Improvements in machinery or apparatus " for drying and printing calicoes and other fabrics." This is a long Specification, containing 66 pages of description, and eleven full sheets of drawings, giving minute details of the following improvements.

First. Stretching cloth while drying, and keeping the weft threads at right angles to the warp. To effect this the cloth is passed on to stretching rollers, over which revolve two endless straps, having pin points fixed in them. By the aid of these straps and points the cloth may be stretched by its edges to the desired width. The cloth then passes on to the steam chests or cylinders, which are also provided with moveable caps, with sliding covers and endless pin bands to continue the widening till the piece is dried. The widening is further effected by the use of a compound pin stick to stretch and keep straight the ends of the pieces.

Second. Improvements on the Lancashire "toby tub." Each separate colour is conveyed from its colour cistern by a separate pipe. The sieve trough is a soft metallic frame instead of wood, divided into compartments for each colour fixed on a wooden board; a section of this frame is sawed off and again replaced, after the sieve cloth has been stretched over the frame and fastened down with pegs and rosin. Each colour flows from the colour cistern, along its pipe, and through holes in the bottom wooden board, fills the compartments, and lastly floods each so divided portion of the sieve cloth with its own colour. When the colours used are composed of ingredients liable to settle, an agitator is introduced into each end of the pipes. The sieve frame may be divided into separated parts and furnished with colour by means of a frame with pegs or pins attached to its under side; these pegs dip into the colours and carry them to the corresponding parts of the divided sieve. The colours so deposited on the sieve are teared by a roller caused to revolve, having parts left in relief which are made to correspond in size and position with the compartments on the sieve.

Third. Improvements in printing stripes on cloth, causing them to fit into other stripes already printed. This is effected by an apparatus composed of a pair of moveable guide frames, one on each side of the machine, encompassed by two endless bands studded with short sharp pins. The cloth on its passage to the printing roller is caught on its salvages by the pins and delivered on to an intermediate breast roller of the width desired.

Fourth. Application of wheel work and crank to give a circular motion to the tearing brush in a common circular sieve tub.

Fifth. Arrangement of mechanical parts for simultaneously tearing with brushes the flat plate, and also the grounding sieves of the machinery described in the specification of former Letters which were granted to the present Patentee, January 15, 1813, N° 3639, and May 24, 1830, N° 5938.

Sixth. Applying a short engraved repeating cylinder to print shawls and handkerchiefs by successive repetitions of the same impressions without stretching the piece over any table. There is a full description of the details of a machine which will first print one border, and then the piece being taken off is re-entered, and the other border printed, having that part of the breadth on which the border is to come correctly matching to the engraved part of the cylinder. Mitre cuts must be sewed on the piece to protect the corners of the cross borders. This short repeating cylinder is applied with its top roller in frames or carriages the sides of which are not closed by vertical side jambs, so that a piece can be introduced, selvage foremost, for printing cross borders and fillings, the end of the piece going away out of each side of the frame; or a piece much wider than the frame can be introduced end foremost, with a part of it inside and part of it outside the frame for printing long borders. "The chief " peculiarity of my present application of a repeating cylinder " to print cross borders and fillings being that the piece is un- " supported at the part which is being printed except by the bite " of the cylinder and top roller between which it is passing, whereas " in my former applications the piece was always laid upon some " kind of table."

[Printed, 7*s.* 10*d.* See London Journal (*Newton's*), vol. 19 (*conjoined series*), p. 34.]

A.D. 1834, December 4.—N° 6728.

HUDSON, JAMES.—" Certain machinery and apparatus applic- " able in block printing on silk, woollen, cotton, and other fabrics, " and on paper."

The apparatus described is for "tearing color" by mechanical means. The sieve cloth is an endless web, which is stretched on and over a square "swimming" tub, and over a roller at each end. This sieve cloth passes under the swimming tub, and thence between the furnishing roller (placed in a colour box), and an upper roller to press back the superfluous colour. It is then further cleaned by a doctor, and comes again over the swimming tub furnished with colour. The block printer supplies his block with colour as it passes.

[Printed, 10*d.* See Repertory of Arts, vol. 4 (*new series*), p. 321; and London Journal (*Newton's*), vol. 11 (*conjoined series*), p. 198.]

A.D. 1835, January 27.—N° 6754.

BUDD, John.—" Certain improvements in printing silk, calico, " &c., and in the manufacture of plates, blocks, cylinders, or rollers " used for such purpose."

This invention consists in substituting for copper an alloy of zinc and tin, in the manufacture of plates, blocks, and rollers, in the proportion of 10 parts of tin to 100 parts zinc.

[Printed, 3*d*. See London Journal (*Newton's*), vol. 6 (*conjoined series*), p. 352; and Rolls Chapel Reports, 7th Report, p. 158.]

A.D. 1835, March 11.—N° 6784.

HENDRICKS, Herman.—" Improvements in dyeing." " The " apparatus employed, as far as regards the dyeing of wool, " woollen fabrics, woollen and other skins, and other articles of " blue colors without the use of indigo, consists, first, for dyeing " wool in the flock or fleece," of a " vessel pierced all round and at " the bottom with holes," to hold the wool, and a series of " vessels in which the liquids or baths are contained," with a " frame or horse," on which the first vessel may rest. These dye vessels are arranged in a circular form, so that a " crane " fixed in the centre can be made to take out or put in successively the first vessel containing the wool into the various dye vessels, of which there are seven given in the drawing.

For dyeing cloths, stuffs, &c., in the piece, the apparatus consists of a series of four dye cisterns suitably provided with draw-off cocks, and pipes for heating the liquors by means of steam. The piece, in dyeing, is caused to proceed continuously over and under rollers, and between squeezing rollers placed over the first and second cisterns, through the first three cisterns. It is then caused to ascend into the air for some distance and over a roller, and then to descend into the fourth cistern, where it may be wound on a roller in the liquor, or be caused to pass out of the cistern on to the carriage placed for it.

The Patentee employs the "ferruginous prussiate of potash (or " any other ferruginous prussiate)," with " proto-sulphate of iron," to dye blues with; and to effect this object he prepares the following baths:—First, an acid bath composed of weak sulphuric or other acid, at the temperature of from 80 to 100° F.; second, a water bath for washing; third, a bath composed of a weak solution of carbonate of soda; fourth, solution of " ferruginous prussiate of "potash," at about 3° Beaumé, to which is added a little acid; fifth, solution of "proto-sulphate of iron," at 4° Beaumé, and at about the temperature of 160° F., also "acidulated," if required; sixth, composed of water slightly acidulated; seventh, composed of water and acid. Eighth "bath" is "a stove made close, and "heated to about one hundred degrees Fahrenheit, in which the "dyed material is to be placed." Ninth is the "ammoniacal "bath," and consists of a closed place in which the dyed goods may be hung up, and into which ammonia or its vapour is introduced.

The Specification gives at length the modes of operating with the above baths for the purpose of dyeing blue wool in the "flock "or fleece," woollens in the piece, and skeins; and also for dyeing "green," through "the means and super addition of bichromate "of potash and lead contained in other baths."

[Printed, 1*s*.]

A.D. 1835, May 13.—N° 6834.

BUCHANAN, John.—"Certain improvements in the construction of cylinder printing machines used for printing paper, "calico, and other fabrics." The first part of this invention consists in substituting a large revolving cylinder filled with steam in place of the usual steam chests, for drying the piece after it is printed. The second part consists in dispensing with the usual blanket, by substituting travelling tapes, and the appendages for governing the course of the tapes.

[Printed, 2*s*. 4*d*. See Repertory of Arts, vol. 5 (*new series*), p. 80; and London Journal (*Newton's*), vol. 10 (*conjoined series*), p. 15.

A.D. 1835, May 30.—N° 6842.

LOSH, John.—"An improvement in the surface or pattern roll "of the machines used in printing calico and other goods, commonly called surface printing machines, and in the mode of working the said rolls." The "pattern roll" referred to, but which is usually called a surface roller, has, in the turning, both its ends left slightly elevated, which carry a strap to drive the roller, instead of its being driven by a toothed wheel.

[Printed, 7*d*. See Repertory of Arts, vol. 5 (*new series*), p. 15; and London Journal (*Newton's*), vol. 9 (*conjoined series*), p. 229.]

A.D. 1835, November 10.—N° 6927.

GREIG, THOMAS.—"A mode of embossing and printing at one " and the same time." The usual printing machine is employed. The drawings given are of a three-colour machine. One or more of the rollers may have its device cut in relief or excavated and be used for embossing, or embossing and printing, while the other rollers may continue to print in colours as usual. The bowl should be made of paper, and its diameter be a multiple of the diameter of the rollers. The cylinders may be kept at any desired temperature during the operation of printing by introducing steam into them.

[Printed, 1*s*. 1*d*. See London Journal (*Newton's*), vol. 10 (*conjoined series*), p. 57; and Rolls Chapel Reports, 7th Report, p. 167.]

A.D. 1835, December 3.—N° 6938.

POTTS, WILLIAM WAINWRIGHT.—"An improved method or " process of producing patterns in one or more colours, to be " transferred to earthenware, porcelain, china, glass, and other " similar substances." "The nature of my invention consists in " the substitution of what is termed 'surface printing' in the " place of printing with engraved plates or rollers, for impressing " patterns on paper to be transferred; that is, in the employment " of rollers, blocks, or other implements for impressing patterns or " figures, on which the pattern or figure to be produced is raised up " or in relief. By this method patterns may be produced either in " one or several colours, each part of the pattern which is intended " to be of a separate colour being formed on a separate roller or " block." The various modes in which the same may be practised consists, first, in the use of the "surface printing machine used by " calico printers." Secondly, in the use of "blocks applied by " hand, similar to those used by calico printers in block printing," or by means of "presses such as are used by letter-press printers." " The colouring matter employed is the same as is generally used " by manufacturers of earthenware and glass, and prepared in " any of the usual modes."

[Printed, 7*d*. See Repertory of Arts, vol. 6 (*new series*), p. 151; London Journal (*Newton's*), vol. 9 (*conjoined series*), p. 158.]

A.D. 1835, December 7.—N° 6946.

SIEVIER, ROBERT WILLIAM.—"An improved waterproof cloth " or fabric, made either elastic or non-elastic, applicable to various "useful purposes, and for an improved manufacture of water-"proof hats or caps." This invention relates in part to making waterproof hats, &c., by coating the body with indian-rubber solution, and afterward covering over the coating with flock of various kinds [see Abridgments on the applications of caoutchouc and india-rubber]. Secondly, the Patentee "prepares a cloth the "surface of which shall present a pattern in different colours." In order to effect this purpose the ordinary printing block, having a woollen surface, is moistened with water and pressed upon a quantity of flock of the desired colour, a sufficient quantity of which adheres to the surface. The block so furnished is then imprinted on the surface of a fabric twice coated with india-rubber solutions prepared as follows. The first coating is to be made from a solution of india-rubber in spirits of turpentine or other proper solvent; for the second coating the Patentee adds to this solution a "portion of acetate of lead, litharge, sulphate of zinc, "gum mastic, or any other proper drying material." The superior glutinous quality of the india-rubber transfers the flock from the block to the fabric. The ground of the fabric may then be flocked after the usual manner of flocking, and the whole pressed, brushed, and finished in the manner described as applied to the manufacture of hats; or instead of using printing blocks, the pattern may be cut out in thin plates of metal or other suitable material, and the flock material be applied to the surface of the prepared fabric through the holes or interstices of the plates; or, instead of using flock to form the pile surface, slivers of wool, cotton, hair, fur, or of other proper material may be employed after the same manner, the pile being obtained afterwards by the fig, teazle, or brush.

[Printed, 4*d*. London Journal (*Newton's*), vol. 12 (*conjoined series*), p. 210; Rolls Chapel Reports, 7th Report, p. 168.]

A.D. 1836, January 23.—N° 6987.

BURCH, William.—"Improvements in machinery for printing "silk and cotton net or lace." This "invention consists in apply-"ing certain machinery for filling the meshes of cotton and silk "net or lace with opaque colouring matter, either to form stops or "figures;" and also in "the application of suitable machinery "for stretching lace or net and conducting it to other machinery "for printing." "The process is as follows:—The piece of net "or lace is hooked on the piece frames and stretched out very

" tight by means of the screws." The block is then dipped into the sieve of colour, which is sufficiently "deep to allow a small " quantity to get on the ends of the pins;" "it is then pressed " down on the piece, the treadle being also pressed up against the " piece and blocks by means of the foot on the lever." The colour is then allowed to drain off the pins into the meshes of the lace. The frame is drawn along and the printing repeated till the piece is finished. The block is formed of two plates of metal "with " a space left between them, and fixed on a wooden block, having " a space also between the plate and the block." Through these plates are made holes for the reception of metal pins or figures, varying in shape, which fill up with the colour the meshes of the net or lace.

Instead of stretching the lace or net on a frame it may be stretched on a revolving hexagonal wheel.

[Printed, 9*d.* See Repertory of Arts, vol. 7 (*new series*), p. 20; and London Journal (*Newton's*), vol. 11 (*conjoined series*), p. 150.]

A.D. 1836, February 26.—N° 7013.

SCARTH, WILLIAM GILYARD, and SCARTH, ROBERT.—" The manufacturing of a substance for blue dyers from materials " not hitherto used." It is alleged that when any of the following substances are fermented in a proper manner the result will be the manufacture of woad for dyeing blue, namely, shumac, peat, oak bark, or the stalks, stems, and other parts of the hop plant.

[Printed, 3*d.* See Repertory of Arts, vol. 7 (*new series*), p. 32.]

A.D. 1836, April 19.—N° 7063.

PARKINSON, JOHN.—" Improvements in the art of block " printing." This invention is for supplying several colours to the sieve by one operation, and for tearing each colour separate, so that one block may take up the several colours and print them by one impression. At the end of the swimming tub is placed a box containing several small pots of colour; and a corresponding number of pegs or brushes are attached to the under side of a board. On lowering these pegs to the colour pots, each is supplied with a charge of its separate colour, which is transferred to the sieve; in doing so the board is guided so that each peg always touches the same part of the sieve and then deposits its colour. The colour so deposited is "teared" by bringing down circular brushes fixed in a frame, on each portion of colour, and causing the brushes to rotate by means of a handle and small toothed wheels attached to the brushes.

[Printed, 9*d*. See London Journal (*Newton's*), vol. 10 (*conjoined series*), p. 286; and Rolls Chapel Reports, 7th Report, p. 174.]

A.D. 1836, April 28.—N° 7074.

PRESTON, William.—" Certain improvements in printing of " calico and other fabrics." This invention consists " in the " novel arrangements of the blanket (in cylinder printing) which " effects all the purposes of an ordinary blanket without passing " into the drying stove, in conjunction with the use of the grey " piece."

The blanket here referred to is a short endless blanket, which does not reach to the stove, used as a substitute for the ordinary long blanket. " Between the calico or other fabric to be printed " and the blanket is passed a grey piece of calico or similar cloth, " which is rather wider than the piece to be printed for the purpose " of defending the blanket from the impression from the printing " cylinders."

[Printed, 8*d*. See Repertory of Arts, vol. 6 (*new series*), p. 356.]

A.D. 1836, June 27.—N° 7137.

ROBERTS, John.—" Improvements in the art of block printing." The improvement referred to here is in the "spring tub." The sieve cloth is placed on an oil cloth perforated with numerous holes, and both are fastened to three sides of a box frame; the fourth side is made moveable and can be tightened with a screw. The colour is contained in a cistern on a higher level than the sieve and flows from it through a tap and pipe into and fills the box frame. If more colour be let in it passes up through the holes in the oil skin and floods the sieve.

[Printed, 8*d*. See London Journal (*Newton's*), vol. 10 (*conjoined series*), p. 1; and Rolls Chapel Reports, 7th Report, p. 177.]

A.D. 1836, July 2.—N° 7139.

POTTS, William Wainwright, MACHIN, William, and BOURNE, William.—" An improved method or process where- " by impressions or patterns in one or more colours or metallic pre-

" parations are produced and transferred to surfaces of metal, wood,
" cloth, paper, papier machie, bone, slate, marble, and other
" suitable substances, prepared or otherwise, not being used or
" known as earthenware, porcelain, china, glass, or other similar
" substances." This " invention consists in a novel application
" of a well known process of art to purposes for which such pro-
" cess has not heretofore been employed, namely, the transferring
" of impressions from engraved surfaces, or printing or lithogra-
" phic blocks, to the surfaces of metal, wood, and other substances
" herein specified, by similiar manipulations, preparations, nd
" materials, to those which are and have been used in effecting
" such transfers of designs to the surfaces of earthenware, porce-
" lain, china, and other similiar substances."

This is effected by printing with plates, blocks, or rollers, on paper prepared with soap ley, various known transferring inks. The paper so impressed is laid on the material to be printed, and the impression is transferred thereon by pressure. The paper is then washed off.

[Printed, 4*d*. See Repertory of Arts, vol. 7 (*new series*), p. 162; and London Journal (*Newton's*), vol. 10 (*conjoined series*), p. 4.]

A.D. 1836, November 15.—N° 7225.

APPLEGATH, Augustus.—" Certain improvements in printing " calico and other fabrics." This invention consists of a machine for printing by blocks and of a mode of furnishing the blocks with colour, which colour apparatus is also applicable to hand block printing. The blocks (of which there are six in the drawing) are fixed to moveable frames or heads which are connected with wrought iron bars that are caused to move up and down in guides by means of elevating and depressing cams. The blocks are thus depressed to the sieves and elevated from them, and then depressed to the surface of the cloth and again elevated. On the cams are detaching pins for the purpose of liberating hammers or mauls, which at the proper moment fall by their own gravity on the backs of the blocks and cause the proper impression to be given. When the blocks are elevated after making an impression, a sieve frame, containing as many separate sieves as there are blocks, is caused to slide in under the blocks and by the revolution of the cams supply them with colour.

[Printed, 1*s*. 5*d*. See Repertory of Arts, vol. 8 (*new series*), p. 35; London Journal (*Newton's*), vol. 11 (*conjoined series*), p. 329.]

A.D. 1836, November 19.—N° 7228.

GIBSON, John, and CAMPBELL, John Gordon.—A new " or improved process or manufacture of silk, and silk in combi- " nation with certain other fibrous substances." This invention, as described in the "Disclaimer," dated December 13th, 1843, consists, first, " in a part of our process by which we discharge the " gum from that peculiar kind of silk denominated silk waste, " when the same is in the state of the sliver or rove. Second, in " a part of our process by which we dye silk waste when in the " state of sliver or rove. Third, in a part of our process by which " we spin yarn from dressed or heckled silk waste of long fibres, " either in the gum or discharged. Fourth, in a part of our " process by which yarn from silk waste with long fibres may be " spun in combination with flax of a similar length of fibre. And, " fifth, in a part of our process by which yarn from silk waste " with long fibre is spun in combination with wool." The gum is discharged as follows: " The sliver (or rove) is put into hanks " of about half a pound each, then each of these hanks is put " into a little bag made of an open fabric, such as thin canvass," and put into " a vessel and discharged or 'boiled off' in the usual " manner." "After this the hanks still contained in the bag are " to be well washed to free them from the deposition of the glu- " tinous matter, or the presence of soap, alkali, or other im- " purities."

[Printed, 11*d*. See Repertory of Arts, vol. 10 (*new series*), p. 345; London Journal (*Newton's*), vol. 18 (*conjoined series*), pp. 387 and 423; Mechanics' Magazine, vol. 59, p. 448; Webster's Reports, vol. 1, pp. 626, 627, and 631; Manning and Granger's Reports, vol. 4, p. 179.]

A.D. 1836, December 24.—N° 7268.

WOODCROFT, Bennet.—"This invention consists in enclosing " calico or other fabrics intended to be printed, along with the " printing apparatus, whatever it may be, and the material to be " printed upon them in a chamber, case, or compartment, filled with " an artificial atmosphere deprived of or devoid of free oxygen, " such as atmospheric air deprived of its oxygen, or any other " suitable atmosphere, and then printing the said calico and " other fabrics with a solution of deoxydized indigo, and such " other suitable materials as are usually used in combination with " indigo when required to produce other colours, and subsequently " exposing the said calico and other fabrics so printed as aforesaid

" to the action of the atmospheric air, in order to imbibe the " necessary quantity of oxygen therefrom to produce and fix the " colours required."

[Printed, 10*d.*]

A.D. 1837, January 28.—N° 7292.

HELLEWELL, James, and FEARN, Aaron.—" Improvements " in the process of dyeing and scouring piece goods and other " fabrics, and in the machinery or apparatus whereby the same is " performed." These improvements consist in " the manner of " carrying on these operations (dipping, dyeing, cleansing, scouring, &c., of piece goods and other fabrics,) consecutively by one " combined series of apparatus, and the construction and arrangement of the apparatus for effecting that object." " This " apparatus may consist of ' a series of vessels with rollers, nearly " ' resembling those usually denominated ' jiggers,' which vessels " ' are connected together and fixed in a cast iron frame.' " The rollers may be driven by gearing. The first four of " the series of " vats or vessels of wood are intended to contain the ' saddenings ' " or dyeing liquor, which is allowed to flow from one vessel to " another through longitudinal pipes for the purpose of preserving " a level and uniformity of strength of the liquor throughout all " these vessels." The following three vessels of the series, connected also by longitudinal pipes, " are designed to contain the " chemical solution required for fixing the dye or colour in the " goods." And a further series of three vessels may " contain " pure water or other liquor for rincing, cleansing, or scouring the " goods." These vessels are supplied with suitable rollers for guiding the piece through, and squeezing rollers to press the liquor out, and levers and weights for giving suitable pressure, with agitators to prevent subsidence in the liquor, and suitable pipes to supply the liquors and water and steam when required. The fabric is caused to enter at one end of the series and to progress through the various liquors and to come out at the other end, so that many pieces may be treated continuously.

[Printed, 1*s.* 4*d.* See Rolls Chapel Reports, 7th Report, p. 183.]

A.D. 1837, March 7.—N° 7317.

BACKHOUSE, Henry, and GRIME, Jeremiah.—" Improvements in the art of block printing," consisting principally in the peculiar and novel arrangement of the table to be used in block printing; also in the application of a drying cylinder to the printing table. Another improvement is the application of a small temporary table and blanket covered with calico and placed at the opposite side of the table to that where the workman stands, for the purpose of receiving from the printing block what is usually termed in the trade the "tip," that is, any extra portion of the block which may project over the width of the cloth. Another part of the improvements is the application of a pair of crimping rollers for the purpose of contracting or elongating the cloth after it has received one colour in order that the succeeding block may register or fit in more perfectly.

[Printed, 10*d*. See Rolls Chapel Reports, 7th Report, p. 184.]

A.D. 1837, April 18.—Nº 7342.

STEPHENS, Henry, and NASH, Ebenezer.—" Certain im-
" provements in manufacturing colouring matter and rendering
" certain colour or colours more applicable to dyeing, staining,
" and writing."

" These improvements consist, first, in obtaining a product of
" prussiate of potash or soda from the gases evolved from the
" distillation of animal matters that yield azote and carburetted
" hydrogen, such, for instance, as coal, by means of passing these
" gases direct into a mass of alkali in a state of ignition, and into
" a solution of alkali contained in separate vessels, either closely
" or distinctly connected with the distillery apparatus."

Secondly, in " the use of strong acids for the purpose of digest-
" ing dry prussian blue of commerce, in order to render it more
" easily soluble in the oxalic acid than it would be without such
" digestion, and in the use of oxalic acid, however obtained, as
" a solvent for prussian blue generally, but more especially as a
" final process for making a perfect solution of the prussian blue,
" which has been prepared and digested in the manner above
" described."

Thirdly, in " the application of oxalate or super-oxalate of alu-
" mina or oxala-phosphate of alumina in combination with the
" other materials described, for the purpose of making a red solu-
" tion for writing, staining, or colouring;" and,

Fourthly, in " the combination or mixing of carbonaceous
" matters with saline and alkaline solutions of resinous matter for

" the purpose of mixing with coloured solutions to form compo-" sitions for the purpose of writing, which writing shall not be " capable of being entirely effaced by any chemical agent."

[Printed, 6*d*. See Repertory of Arts, vol. 11 (*new series*), p. 50, also p. 58 for Disclaimer; London Journal (*Newton's*), vol. 13 (*conjoined series*), p. 207, also vol. 21 (*conjoined series*), p. 476 for Disclaimer; and Rolls Chapel Reports, 7th Report, p. 184 and 185.]

A.D. 1837, June 12.—N° 7389.

WOONE, GODFREY.—" An improved method of forming plates " with raised surfaces thereon for printing impressions on different " substances." The invention consists " in improvements in " forming moulds or matrices from which casts are to be taken in " metal or other substances capable of receiving a sharp impres-" sion, having on their surface the relief of the pattern." The moulds are obtained by the following methods:—For the finer patterns used in calico or other printing the Patentee takes white lead and plaster of Paris in different proportions, about two parts by measure of white lead and one part of plaster of Paris, mixed with water to the consistence of cream. This mixture is poured on a polished and even plate, the depth varying from a twenty-fourth part of an inch to an eighth part of an inch, according to the fineness or coarseness or the design. The plate is dried, and the face of the composition scraped perfectly smooth. The pattern is then " put on " in the usual way; and the operator proceeds " to engrave, etch, scratch, or draw with a steel point or other " suitable instrument all the lines or parts of the design through " the composition or coating down to the metal or substance on " which the composition is laid."

Secondly, for the coarser patterns or colouring blocks used in calico or other printing, the Patentee says, " I take a piece of metal, " wood, pasteboard, stone, or composition of plaster of Paris of " the height of the intended relief, and I glue or otherwise fix the " same on a block of wood, metal, or other suitable material." " I then cut, engrave, or etch with acid quite through the " piece of metal, wood, &c., either the outline or the whole of the " pattern or design." Parts of the block may be raised by applying to the mould at the parts desired either modellers clay, chalk and white lead, or other suitable substance. The casts are taken off in the usual manner. "The back of the plate is to be turned " even in a lathe and mounted on wood." " When the plates are "to be applied to cylinders the metal or substance on which the "mould is formed should have a circular or curved form, or the "plate may be cast level, and the required circular direction given "by pressure."

[Printed, 4*d*. See Repertory of Arts, vol. 9 (*new series*), p. 95; London Journal (*Newton's*), vol. 13 (*conjoined series*), p. 162; and Mechanics' Magazine, vol. 29, pp. 163, 210, and 230.]

A.D. 1837, July 29.—N° 7411.

PALMER, William.—"Improvements in printing paper-hang- "ings." "This invention consists in a mode of combining certain "mechanical instruments or apparatus into a machine for printing "paper-hangings." "The framing is made of wood or iron." "The block or surface to be printed is affixed by screws in a "frame; this frame is suspended from and moves on an axis; "such axis being affixed to the arm, which arm is attached to the "hollow axis, which moves in bearings, and to this hollow axis "are affixed handles, one of the handles being a curved plate "within which the other handle can lie; and when both handles "come together, they act as one handle. The object of one of "the handles and the axis is to give suitable pressure to the "block." This machine consists of an apparatus for printing by blocks by mechanical means; the block being depressed to the printing table and elevated therefrom by means of a combination of cranks and connecting rods.

[Printed, 1*s*. 3*d*. See Repertory of Arts, vol. 10 (*new series*), p. 31; London Journal (*Newton's*), vol. 14 (*conjoined series*), p. 327.]

A.D. 1837, November 2.—N° 7455.

LOCKETT, Joseph.—"Improvements in the art of printing "calicoes and other fabrics of cotton, silk, wool, paper, or linen, "separately or intermixed" (being the communication of a foreigner). These improvements consist in "a new arrange- "ment of machinery for the purpose of printing one, two, "or more colours on cloth, paper, or other goods, by means "of engraved blocks, or what is sometimes called surface print- "ing," whereby may be effected "the three movements of coloring "the sieves, making the impression, and moving the cloth." This block printing machine may consist, generally, of a square iron table, mounted in a frame provided with three plane surfaces facing the three blocks. At each corner of the table is placed a roller called the "carrying roller," to admit of the blanket and fabric passing readily round it. The blocks are caused to advance towards and recede from their respective surfaces of the table by the rotation of cranked shafts. The colour is supplied to each block by means of sieves, which move in grooves parallel to the surface of the respective blocks. These sieves receives their colour from furnishing rollers, and the colour is spread by brushes. The alternate traverse of the sieves is effected by a series of levers connected to each other, and receiving motion at the proper period (when the blocks have retired from the table) by means of an eccentric scrole guide placed on the driving shaft. To effect the proper periodical movement of the cloth, the shafts on which the "carrying rollers" are placed are provided with equal spur wheels which geer into a centre wheel connected with ratchet wheels. These wheels are actuated at the proper moment and in sufficient degree by a traversing rack. The mechanical arrangements of this machine may be so modified that it will print handkerchiefs with borders, or paper, and, when required, make two impressions on one part of the fabric.

[Printed, 3*s*. 1*d*.]

A.D. 1838, January 23.—N° 7549.

HANCOCK, Thomas.—"Improvements in the method of "manufacturing or preparing caoutchouc, either alone or in com"bination with other substances."

This invention relates chiefly to modes of making "sheets" and "slips or threads" from caoutchouc, prepared by the process described by the Patentee in his specification, dated April 18th, 1837. (See Abridgments, India-rubber and Gutta Percha). The sheets so prepared may be "printed" with various colours "by "means of plates, type, blocks, or stencilling in the manner com"monly practised." Or "any suitable pattern or graining may "be given to the sheets of caoutchouc by raising figures previ"ously on the prepared cloth (the cloth upon which the sheet of "india-rubber has been formed), either by embossing or other"wise."

[Printed, 3*d*. See Repertory of Arts, vol. 10 (*new series*), p. 168; Mechanics' Magazine, vol. 28, p. 101.]

A.D. 1838, January 25.—N° 7552.

HANCOCK, Charles.—"Improved means of producing figured " surfaces, sunk and in relief, and of printing therefrom, and also " of moulding, stamping, and embossing.

" First. I take a block, cylinder, and other piece of metal, and I " roughen the surface whereon the design is to be made by any of " the means in common use, so as to obtain that peculiar tooth " denominated by engravers mezzotinto ground; and after trans- " ferring the outline of the subject thereon by the usual means, I " proceed to scrape, etch, or otherwise remove the superfluous parts " of the surface, so as to obtain the required forms and variations " of light and shade; I then cut deeply with the graver all those " parts which I desire to appear as high lights." In printing with this plate the common printing press is used, and a sheet of india-rubber from a quarter to half an inch thick, cut to the shape of the plate, is fixed to the tympan frame. "The printing being then " proceeded with, the impressions will be found to exhibit the " reverse effects to those of ordinary printing from mezzotinto " plates, the usual light parts appearing in mine as darks, and the " usual darks appearing as lights."

" Second. When it is desired to produce certain parts of a subject " in high or bold relief, and such parts form but a small portion " of the whole plate," " I cut out separate pieces of metal of the " shape of those parts of the subject, and affix them in their " proper places to the principal plate by some suitable solder or " cement.

" Third. I take a copper or steel plate prepared with an ordinary " etching ground, and over this ground I lay a piece of woven " silk or wire gauze, or glass paper, or any other fabric of such " texture as will by pressure break up uniformly the whole surface " of the etching ground into minute projecting particles re- " sembling the aquatinta grounds;" " and by a combination of " drawing, painting, and engraving in relief, I obtain a figured " surface in relief, from which impressions may be taken by a " common printing press."

Fourth. " I take a thin solution of caoutchouc mixed with " etching ground diluted to a suitable consistence," for the purpose of covering the whole or parts of plates which are to be etched, and afterwards submitted to the action of acids.

Fifth. I cover the entire surface of the plate or cylinder with a composition that will mix with water. " I then, with an etching " needle or point, draw in the subject through the composi- " sition down to the surface of the metal." The incisions and spaces so made I then fill up by "means of wax or etching " ground diluted, or other composition insoluble in acid; and " when the whole has become hard I submit the plate or cylinder " to the action of the acid.

Sixth. For obtaining a very bold relief, I prefer the employment of lithographic stones, or stones of a similar description;" and when I employ them I use the same process and materials as above, "and after the same manner, only that the acid I use " for this purpose is the nitric diluted.

" Seventh. I draw or paint upon metallic surfaces, with such " materials as water cake colour, treacle, and glue," &c., " that " dilute acids will operate upon, and when the design is completed, " I brush over the whole surface of plate with a resinous varnish, " or with wax, which dilute acids will not act upon. I then plunge " the plate into hot water to soften and loosen the treacle, &c., " and afterwards apply the acid in the ordinary way."

Eighth. I produce figured surfaces, sunk and in relief, upon " thin plates of silver, copper, zinc, brass, or other ductile metal," " by indenting with a hard point or other suitable instrument the " required design upon the same, or impress the design by means " of a die, stamp, or figured roller."

"Ninth. I produce figured surfaces, both sunk and in relief, " upon blocks or stamps made of flexible substances, such as " india-rubber, or the composition of glue and treacle used in " making printers' balls and rollers.

"Tenth. I obtain figured surfaces from lace, net, gauze, wire " gauze, hair cloth, and various other figured fabrics, and print " from the same." " I charge the lace, &c. with colour in the " same maner as type is charged, and take impressions from it by " the common modes or process of printing from surfaces in " relief."

" Eleventh. For the purpose of printing in a variety of colours " I adopt the following method:—The subject or design is first " transferred in outline to as many pieces of cambric, paper, cloth, " or leather as there are different colours to be printed. All those " parts of each of these outline impressions which are not desired

" to be of one and the same colour, are then stopped out with " sealing wax dissolved in spirits of wine, or any other suitable " composition." "I then take a blank piece of paper, cloth, or " other material fit for printing on, and place upon it one of these " outline impressions, in which all the parts meant to be of one " colour are stopped out, taking care to keep the varnished side " uppermost; and then charge it with colour by means of a piece " of cloth, brush, or sponge saturated with colour, by means of " suitable pressure. I go through the same process with each of " the remaining outline impressions, till the whole of the subject " or design has been transferred to the blank piece of cloth or " other material in the desired diversity of colours."

" And, lastly, I sometimes make my colouring surfaces" "by " filling the sunken parts, or by putting upon the raised parts (of " the plate to be used in printing) leather or any other suitable " material that will absorb or receive colouring matter, and fix it " by cementing it to the sunk or relief surface with diluted " asphaltum or other suitable cement."

[Printed, 4*d*. See Repertory of Arts, vol. 13 (*new series*), p. 140; London Journal (*Newton's*), vol. 14 (*conjoined series*), p. 331; Mechanics' Magazine, vol. 36, p. 364.]

A.D. 1838, March 26.—Nº 7602.

COULON, Auguste.—"Improvements applicable to block " printing." "My invention consists in the application of an apparatus so constructed, that the supplying and placing of the " colour evenly on a sieve is performed by the printer at the time " he is using the block. And also the invention relates to a " method of regulating the supply of colour to the sieve by means " of a mechanical arrangement. This machine is worked by the " foot of the workman (or printer), or it may be set in motion by " any power being applied to a pulley, upon which is a cord, " which communicates the motion to the other parts of the " machine." A brush and scraper are thereby caused to move backward and forward in order to "tear" the sieve. "The apparatus " for supplying the colour I construct of a cylindrical form of " tin, or in some cases of wood, into which the colour is put, and " from thence runs on to the sieve underneath by means of an " opening."

[Printed, 1*s*. 1*d*. See London Journal (*Newton's*), vol. 14 (*conjoined series*), p. 323.]

A.D. 1838, March 26.—N° 7605.

HULLMANDEL, Charles.—" A new mode of preparing certain " surfaces for being corroded with acids in order to produce pat- " terns and designs for the purpose of certain kinds of printing " and transparencies."

This invention consists, "first, in drawing narrow or broad lines " (so as to produce figures or patterns directly on the surface of " copper, steel, or other metallic or glass plates or rollers, and " without the previous intervention of any resinous or other " ground or covering), with a composition or mixture soluble in " water, and which mixture, when the plate has been subsequently " covered with varnish and steeped in water, will dissolve and " rub off with the varnish which is over it, thus exposing the " surfaces which were under the mixture to the action of any acid " which may be used to corrode the same."

The composition given is composed of "treacle, nine grains, gum " arabic in powder, eighteen grains, best lamp black, nine grains, " mix with water to the consistency of cream and grind well."

" The second part of my said invention is preparing the said " surfaces for biting in the shadows for the pattern or design ob- " tained in outline, as before described. For this purpose I take " a very small quantity of tallow or grease of any kind on a rag " or piece of wash leather on the tip of the finger and rub the " surface of the plate or roller with it, so as to grease it all over " slightly though perceptibly." The surface of the metal is then to be well wiped till no visible grease is left. " On applying a " solution (composed of equal parts of gum arabic and gum traga- " canth to which one fifth of treacle and a little lamp black is " added), with a camel's hair pencil to the surface prepared with " grease as aforesaid, the solution will retract or withdraw itself " into reticulated or irregular forms or a sort of network ;" " by " which means, if laid on in an artist-like manner, forms and " shading can be produced with the greatest ease and rapidity." The plate is then varnished, steeped in water, and corroded with acid, as described in the first part of the invention.

[Printed, 10*d*. See London Journal (*Newton's*), vol. 16 (*conjoined series*), p. 257.]

A.D. 1838, May 22.—N° 7647.

APPLEGATH, Augustus.—" Improvements in apparatus for " block printing." The improvements here referred to consist in a novel arrangement of the table, sieves, and blocks, for the purpose of printing two or more colours. The table, as given in the drawings, is of about the usual width, and in length little more than that of the printing block. The sieve carriage, holding as many sieves as there are colours to be printed, revolves on a spindle. The block carriage, which carries a corresponding number of blocks, can be elevated or depressed by a lever, and revolves also on its axis. The axles of both carriages are connected by intermediate wheels, "so that when the block carriage revolves, " the sieve carriage must revolve with it, by which the similar " coloured blocks and sieves are sure to act together." Both are placed on one traversing carriage, which is caused to move from side to side of the piece as the printing proceeds. "The method " of applying the colour to the block is the same in principle " as that patented by me on the 15th November, 1836, to which " reference may be made." The colours are contained in square " stone or wooden boxes, resting upon the colour board, which is attached to the traversing frame.

" The manner of using this apparatus is as follows: the colour " sieves being supplied with colour, the 'lifting boy,' who stands " near the handle of the lever, lowers the block carriage so that " one block rests upon the printing table while the other dips " into one of the sieves, when the 'rubber boy,' who stands near " the handle, moves the pulley by means of its handle, which " causes the rubber to pass under and along the sieve, raising " it in contact with the block;" at the same time the printer, " who stands at the end of the machine near the feeding drum, " gives the impressing blow or blows with the maul or printer's " hammer upon the faulse back of the block." While this is doing "the 'teerer' tears or brushes the colour upon that sieve " which is opposite to the block which is printing; the 'lifting " 'boy' then raises the lever with his right hand, and turns the " next arm of the block carriage to the printer, and the before " described operations are repeated until the four blocks are successively printed. The 'lifting boy' then raises the handle of " the catch or pall and draws or pushes the traversing frame and " the block and sieve carriages upon it together with colour board, " &c., across or sideways till the pall falls into the next division " or gap in the bar shown in the figure. The same course of " tearing and printing is then repeated, and when the cloth or " material has been printed all across the rubber boy raises the

" pall and causes the feed drum, &c., to revolve one quarter of its " circumference, which supplies a fresh quantity of cloth or " material upon the printing table, and so on till the whole is " printed."

" The sieves may be made endless with rollers which serve to ex- " tend them, and which should be furnished with the usual " tightening screws to regulate the running of the endless cloth."

When desirable two dips or two applications of the colour can be obtained by moving the sieve frame slightly between the dips in order to bring a new surface of colour under the block.

[Printed, 1*s*. 3*d*.]

A.D. 1838, May 31.—N° 7660.

NUSSEY, George.—The invention consists in " the manu- " turing of a vegetable preparation from the tops or leaves of " carrots, and the stalks or stems and the leaves of the madder " plant, applicable to dying blue and all other colours to which " woad is applicable." The leaves or tops of the carrots are ground, made into balls, partially dried and submitted to " the " fermenting process called couching." The stalks or stems and leaves of the madder plant are " couched " without the partial drying.

[Printed, 3*d*.]

A.D. 1838, June 7.—N° 7673.

KNIGHT, Charles.—" Improvements in the processes and in " the apparatus used in the production of coloured impressions " on paper, vellum, parchment, and pasteboard by surface print- " ing." These improvements consist " firstly in reversing the " usual order of proceeding " in printing, that is to say, the Patentee " prints first the colouring or tinting," and finishes by printing " the outlines."

" Secondly, in printing several colors at the same time, upon " as many different sheets (or one large sheet) as there are colors " to be printed upon each sheet, the position of the printing " surfaces and of the sheets with respect to each other, being so " changed after every impression, that each printing surface shall " successively be applied to each sheet, until all the colors have " been printed uppn the corresponding parts of all the sheets, " and thus every sheet has become a fac-simile of each of the " other sheets."

"Thirdly, in producing a compound tint, by printing one "color over the other in so short a time as not to allow the color "first printed to become dry before the second is added, thereby "affording an opportunity for the two colours to mix and form "the new tint."

"Fourthly, in blending one color with another so as to produce "a softening effect, in gradually varying from one color to the "other."

The Patentee also claims the following improvements in the apparatus used.

"Firstly, in additions to the common printing press, by which "I can print various tints, shadings, and outlines successively "upon one sheet without removing the sheet from its tympan."

"Secondly, in other additions to the common printing press, "by which I can print various colors or tints at one and the same "time, upon as many different sheets as there are colors employed, "and by which I can shift the position of the printing surfaces "in respect of the sheets, so as to print successively all the colors "upon all the sheets.

"Thirdly, in the manner of making and combining several "blocks, plates, or printing surfaces, so that the different colors "printed from them shall accurately meet one another on the "sheet, or, in other words, shall keep accurate register."

"Fourthly, in the manner of making and combining several "blocks, plates, or printed surfaces, so that the color from one "plate may overlap the color from another plate, and produce "either an even tint, resulting from an assigned proportion of "the two colors being continued over the whole of the over-"lapped surface, or producing a varying and softening tint by "gradually varying the proportions."

"And, fifthly, in making a tympan with its frisket in a "detached frame, capable of fitting accurately, and acting in "two or more presses, whereby a sheet printed with various "colors or tints, for example, four in one press, may be trans-"ferred to another press, and receive four additional tints, more "or less, without being shifted from the tympan, and also may "be removed to a third or fourth press if required, and thus "any number of tints may be printed upon one sheet, the tints "meeting and blending in the most beautiful manner, because "the most perfect register may be insured by the correct fitting "of the same tympan frame into all the processes employed."

" These, the principles of my process and apparatus, admit of " being carried into effect, according to a great variety of modi- " fications, of which those shewn may serve as samples."

[Printed, 1*s.* 8*d.*]

A.D. 1838, June 14.—N° 7686.

WINTER, JOSEPH.—" Improvements in painting, printing, or " otherwise ornamenting the surfaces of leather, silk, cotton, or " linen, which improvements are particularly applicable to the " manufacture of gloves, stockings, and such like articles."

" In preparing colouring matters for printing or painting upon " the surfaces of leather, silk, cotton, or linen, the dry colour is " first ground up in spirits, and then a small quantity of caout- " chouc (india-rubber) in a fluid state is mixed with the colour " by way of gum. This preparation will cause the colour to " take more firm hold of the material upon which it is laid than " any of the ordinary colours or inks used for printing; and, " beside, the elasticity of the gum will allow the goods which " have been printed or painted with such prepared colour to " expand without breaking any parts of the device, or allowing " the colours to peel off."

The other parts of this invention are for preparing skins; for producing devices on leather by means of acids; and for preserving embossed devices on leather.

[Printed, 4*d.* See London Journal (*Newton's*), vol. 14 (*conjoined series*), p. 50.]

A.D. 1838, June 22.—N° 7701.

SANDIFORD, ROBERT.—" Improvements in the art of block " printing." These improvements consist, first, " in a peculiar " construction of the block from which impressions are made " upon calicoes, muslins, silks, paper, and all other fabrics in the " ordinary art of block printing by hand." The block is constructed of " a light frame work of wood, which I substitute in " place of the solid block in common hand printing. This frame " consists of plain light rails firmly secured together; but it is " evident it may be constructed in any other form, or of any other " light material, as light metal tubing, or any other suitable " substance. Upon this frame thin slips of wood or other material, " having the pattern or design intended to be printed formed

" upon them, are to be screwed upon the frames in separate rows, " or any other order that shall produce the print required; as, " for instance, if the goods to be printed are to be handkerchiefs " or shawls (for which these improvements are particularly " adapted), then the frame will have the centre or filling made " up (as shewn in the drawing), and have a complete border " pattern also fixed upon the frame, and with one dip of the block " produce the complete handkerchief at one impression."

Secondly, in printing piece goods in the entire length, by the use of these frames carrying the design to be printed, they may be completed in a few minutes in three colors; " place three " ordinary printing tables end to end in one length, and with " three printers (following each other), each having his own " block or frame of the same size square as the width of the piece " of goods, and also furnished with his own sieve of color."

Lastly, in " a further improved arrangement of the blocks " connected with the art of block printing." " This is accom- " plished by having the print, and the two objects so arranged " upon the block, that by one impression of the same three or " any number of colours may be printed from them, and thus " distinct objects or designs and in different colours may be " printed at once. The sieve of colour upon which the block " or frame is to be dipped before printing, must be made in three " or four compartments having partitions, and each containing " its own separate colour." The pattern may thereby be completed by three impressions, the printer advancing or stepping one-third the length of the block at each impression.

[Printed, 6*d*. See London Journal (*Newton's*), vol 14 (*conjoined series*), p. 20; also vol. 20 (*conjoined series*), p. 470; Webster's Reports, vol. 1, p. 311.]

A.D. 1838, June 27.—N° 7709.

ROBINSON, James.—" Method of producing by dying various " figures on objects of various colours in woollen, worsted, cotton, " silk, and other colours," consists in the employment of certain " apparatus, by which I stop out or protect any desired portions " of the cloth or fabric whilst it is under the operation of dying, " in order to produce upon the fabric by such mode of dying what " is technically called savings or blotches of various shades or " figures. These stopping out apparatus are not limited as to their "forms or dimensions," "and may be applied to the cloth either "by hand or by suitable machinery." The apparatus to be applied by hand consists in two plates or blocks of the desired form, which are screwed tightly together, with the portion of cloth between them required to remain unacted on by the dye. The apparatus to be applied by machinery consists of a frame on which the cloth is folded, having blocks between each fold, piled one above another "and firmly screwed down upon the pillars so as to confine all "the blocks, and cause them to press tightly those parts of the "cloth with which they are in contact." "The blocks and cloth "or other fabric, secured together as described, is now to be carried to the dye vat, pan, or boiler, and immersed therein, where "it must remain until the dying operation is complete."

[Printed, 10*d*. See London Journal (*Newton's*), vol. 16 (*conjoined series*), p. 63.]

A.D. 1838, August 21.—N° 7776.

POTTS, William Wainwright.—"Improvement in machines "applicable to the printing or producing patterns in one or more "colours or metallic preparations to be transferred to earthenware, "porcelain, china, glass, metal, wood, cloth, paper, papier machie, "bone, slate, marble, and other suitable substances." Although some of these improvements are "applicable to machines used for "calico and other printing, the principal object I have in view is "the printing of thin paper, the pattern of which is subsequently "to be transferred to earthenware or other similar substances."

"My first improvement consists in the application of steam to "the bowl, the carrying roller, and the mandrills on which the "copper printing cylinders are placed, by which the necessary temperature is supported during the printing process."

"My second improvement consists in a better arrangement of "the furnishing rollers, and apparatus connected therewith, for "supplying the colour uniformly alike."

From the furnishing roller colour is supplied to the printing roller through intermediate carrying rollers, or by an endless cloth of oiled silk "pressed against the printing roller by means of the "small carrying rollers which are supported in an adjusting frame." The furnishing roller "is a metallic roller, engraved with a minute "series of lines from end to end, varying a little from the horizontal, which receives the colour, and are cleared by means of an

" ordinary straight edge or doctor, so that the amount of colour " received and carried forward to the printing rollers is regulated " and determined by the depth and number of the engraved lines " and speed of delivery; and the delivering furnishing roller I " prefer of wood, covered with woollen cloth and afterwards fine " leather."

" My third improvement consists in dispensing with all covering " on the under roller in the sizing machine described in my former " Patent."

[Printed, *7d.*]

A.D. 1838, August 30.—N° 7786.

DOLIER, William.—" Durable surface or tablet for the purposes of receiving writings, drawings, or impressions of engravings or other devices capable of being printed, which surface " may be applied for roads or pavements, and part of which invention may also be used as the means of strengthening and " beautifying glass." This invention consists, firstly, in the application of glass enamel as a durable table for receiving writings or drawings. Secondly, forming a flexible and durable surface " most " suitable for printing and particularly advantageous for receiving " impressions of maps or charts for marine and general purposes." It is thus produced: " Spread upon the reverse side of a sheet of " linen (or other cloth) one coat of a size or varnish made by dissolving one pound of buffalo skin in one gallon of water over " a slow fire, and let the other side when dried be rubbed with " pumice stone, in order to remove all inequalities, and leave the " surface perfectly smooth. This surface is now to be coated " three times with a mixture of the purest white lead, called " flaked white, with boiled linseed oil and spirits of turpentine, " in about the proportions of one pound of white lead to one " quart of oil and half a pint turpentine." Thirdly, the enamelled surfaces first described " are applicable to roads, pavements for " bath rooms, &c."

Fourthly, " relates to the strengthening and beautifying of glass."

And lastly, to the casting of glass on iron frames.

[Printed, *3d.* See London Journal (*Newton's*), vol. 14 (*conjoined series*) p. 150.]

A.D. 1838, November 3.—N° 7843.

BURY, Abraham.—" Improvements in the mode of printing, " colouring, or dying cotton or other fabrics, and in the mode of " producing certain acid or acids applicable to these or other " purposes."

" I claim as my invention the following improvements, that is to " say, first, extracting deoxidized indigo from any vessel in which " it has been made, and transferring it into any air-tight vessel or " vessels suitable for the purpose. Second, connecting the said air-" tight vessel with the colour box or colour receptacle, so as to be able " to fill and feed the said box or receptacle with the least possible " exposure to the atmosphere. Third, the application of cushions " or other packing and pressure to the roller, which works in the " colour box or colour receptacle (whether that roller be a print-" ing, padding, colouring, or dying roller), for the purpose of pre-" venting the admission as much as possible of atmospheric air to " the colour consistently with the free turning of the roller." " And, fourth, the production of concentrated sulphuric acid by " boiling or evaporating in vacuo."

25th April 1839. " I do hereby disclaim part of the title of the " said Letters Patent, to wit, the words 'or acids' in the said " title."

[Printed, 9*d*. See London Journal (*Newton's*), vol. 21 (*conjoined series*), p. 477, for Disclaimer.]

A.D. 1838, November 8.—N° 7865.

WATSON, William, Junior.—" Improvements in the manufac-" ture of materials used in dying of blue and other colours." " My improvement in this process (the ordinary process for dis-" solving indigo by sulphuric acid)" is as follows :—" When the " indigo has been dissolved in sulphuric acid, passed through the " process already described, and the uncombined acid removed as " much as possible by the ordinary means, I add to it hydrate of " alumina, or alum and ammonia, potash or soda, or any other " materials which by their mutual decomposition produce the " hydrate of alumina, and, after mixing these well together I place " the mixture upon a filter, and allow it to remain until the paste " is of sufficient consistency for sale or use."

" Another method I employ in order to improve the colour and " quality of indigo to be used for dying is to dissolve it by cop-

" peras and lime, or other usual well known means. I then " draw off the clear liquor, and by exposing it to the action of the " atmosphere the blue colouring matter of the indigo is precipi" tated, which precipitate is to be collected on a filter, mixed " with diluted sulphuric or muriatic, or any other acid, washed " with water, and lastly dried, by which refining process I pro" duce a beautiful and very fine indigo." "And also I take " indigo refined by the process just described, and dissolve it in " concentrated sulphuric acid." This solution "I call liquid " extract of indigo."

[Printed, 8*d.* See London Journal (*Newton's*), vol. 15 (*conjoined series*), p. 146.]

A.D. 1838, November 20.—N° 7877.

WATSON, William, Junior.—" Improvements in the manufac" ture of liquid ammonia, by which the same may be appli" cable to the purposes of dying, scouring, and other manufac" turing purposes." " I manufacture the liquid ammonia from gas " water, and I dispense entirely with the use of sulphuric or muriatic " acid, and of course with the evaporation and crystalization. I make " it in the following manner:—The gas liquor or gas water collected " at coal gas works I put into a retort or any other suitable vessel " along with fresh slacked lime, the quantity of which is to be " determined by the quality of the water, and by the application " of heat a tolerably pure ammoniacal gas is disengaged, which " being passed into water forms a solution of ammonia." This ammoniacal solution may be purified by distilling it a second and third time " in the same manner as before, preserving for use or " sale that portion only which is made by the absorption of the " ammoniacal gas (or what is principally ammoniacal gas) in " water, and returning to the retort the latter portions of the pro" cess, which consist of ammonia and water that has been dis" tilled from the retort, and brought along with them a considera" ble quantity of impurities.

[Printed, 3*d.* See London Journal (*Newton's*), vol. 15 (*conjoined series*), p. 149.]

A.D. 1838, November 22.—N° 7880.

DELARUE, Fanquet, Fils.—" Improvements in the process of " printing, or otherwise applying and fixing the colouring matter " of madder upon cotton, silk, linen, and other fabrics, without

" dying, and producing by these means permanent colours." The mode of fixing the colour for printing is as follows:—" I take one " part extract of madder (I have found " colorine " to be the best " variety), and an equal weight of ammonia (or other solvent), and " allow them to remain in a closed vessel for twelve hours, but " the proportions of the substances and the time may be varied as " experience will direct." This mixture is ground on a slab, and during this process the thickening necessary to the printing is added. The colour thus obtained is printed in the usual way, on cloth prepared in the ordinary manner with any of the various mordaunts which produce a red when dyed with madder, and dunged. " After the prepared cloth has been printed with the " red colour, as before described, it must be exposed to the action " of steam by any of the various modes employed in printing " calico, for such period of time as may be found necessary." " After steaming, the pieces may be immediately washed off. I " have, however, where I have employed fixed alkalies in the " mixing of the colour, passed the pieces through slightly acidu- " lated water, to neutrallize the alkali."

[Printed, 3*d*. See London Journal (*Newton's*), vol. 15 (*conjoined series*), p. 151.]

A.D. 1838, December 20.—N° 7918.

HOLM, CARL AUGUSTUS, and **BARRETT**, JOHN.—" Improve- " ments in printing." The first part of this invention consists in improvements in letter-press printing, namely, " in the distribu- " tion and feeding rollers; in adapting two small rollers to the " platten; in the adoption of a blanket to support the sheet in- " tended for printing; in inking tables for the distribution of the " ink; of a machine for printing on one or both sides with two or " more vertically placed moveable forms on type table, against two " or more vertically fixed immoveable plattens; in the application " of scissars and feeding or regulating rollers to machines that " print on what is called continuous paper; in certain modes of " combining parts into inking apparatus; in an improved manner " of printing by means of an alternating moveable form against " one or more cylinders laying in fixed bearings; and, lastly, in " the modes of combining apparatus to supply colour to blocks " in block printing; and in the mode of printing two sides of " paper, calico, or other fabric." Various modes are given for supplying colour to blocks which are fastened to iron plattens suspended in a horizontal frame, and move vertically, namely, "elastic " rollers take color from cylinders or surfaces on which it has been " spread, and passing underneath the blocks, communicate colour " to them; or elastic rollers by the motion given to them by the " frame in which they are fixed, press a web to which colour has " been supplied in the usual manner, against the blocks, and " thereby give them colour." "The colour trough or surface " (in the first case) is provided with flanches, on which a web is " fastened of such suitable texture that the colouring matter may " be forced through it by means of the pressure from a colour " reservoir (placed above) which is regulated by a cock on the pipe. " The colour web (in the second case) is wound upon two rollers, " and always kept stretched by two weights suspended by strings " passing round the extremities of the rollers. When the frame " is put in motion, so that the elastic rollers passing under the " block to distribute the colour upon them; the web is also put in " motion by means of a string which lifts one of the weights, " when the counterpoise (the other weight) through its weight, " makes the web pass over the furnishing rollers, where it receives " a fresh layer of colour by means of the cylinder and tearing " brush; when, by the return motion of the frame, with the " elastic rollers, the web is drawn the other way, it distributes the " colour on the elastic rollers." "Or the elastic rollers may be " caused to push the colouring web under and against the block, " by acting on the reverse side of it."

The Patentee also shows a mode of printing the two sides of the fabric at one operation. It consists in placing two printing bowls one above the other. The fabric is caused to pass round the undermost first, and is then transferred to the uppermost, which it also passes round; in doing so the surface of the fabric is reversed, and may be printed on both sides with two or more colours.

[Printed, 2*s.* 1*d.*]

A.D. 1839, January 15.—N° 7937.

BURCH, Joseph.—"Improvements in printing cotton, woollen, " paper, and other fabrics and materials." The Patentee claims, " firstly, the mode of printing by means of a series of blocks " carried by a moveable frame." The blocks are made in the usual way, and have block plates fastened to the back with adjusting screws to regulate the registering of the pattern. They are attached to frames which are suspended by springs from a traversing frame placed on guide rails.

" Secondly. In the mode of applying the printing and dipping " beams in connection with their spring pressers." The printing motion is given to the blocks by a stout crank and connecting rods, and in dipping by revolving cams.

" Thirdly. The mode of applying "mauls" with perpendicular " descent in combination with a series of blocks in a traversing " frame." These mauls are placed perpendicular to the blocks when printing, and at the proper moment are detached from their catches, and descend with force on the back of the blocks.

" Fourthly. The printing of colours on to fabrics, having such " fabrics damp in order to obtain a shading off at the edges of the " design."

"Fifthly. The mode of supplying the color to the brushes " which tear the sieves."

" Sixthly. The mode of cleansing the backing or oilskin which " receives the waste color from the blocks." This may be effected by causing a wetted webb of cloth to revolve and wipe the surface of the oilskin; this is followed by a dry revolving cloth.

" Seventhly. The mode of collecting and drying the fabric after " it has been printed." Consisting of a large reel or wheel, upon which the pieces are wound after being printed.

" Eighthly. The mode of applying a traversing table, on which " the fabrick is printed." This table may be twelve yards long, on which is placed the fabric to be printed, and is caused by suitable means to traverse the printing machine.

" Ninthly. The mode of separating the table from the printed " fabric before the fabric is moved on, allowing the oilskin " to move away simultaneously, in order to prevent the waste " colour slurring the back side of the fabric."

" Tenthly. The mode of moving the fabric by combined " drums."

" Eleventhly. The mode of tinting designs by blocks and " shapes." The design to be printed is dissected into portions or shapes; these shapes, made of beaver, leather, &c., are each supplied with colour by means of a colour surface. The block is applied to each shape in succession, and is thereby furnished with colours, which, when impressed upon the fabric to be printed, produces a beautiful mixture of shades.

"And, lastly, the mode of printing several pieces of fabric with "different patterns by and in one machine at the same time."

The parts of this machine are the same as described, but so arranged as to admit of two or more pieces being printed at one time.

[Printed, 3*s.* 8*d.*]

A.D. 1839, February 8.—N° 7963.

BINKS, Christopher.—"Improvements in obtaining or manu-"facturing, and in rendering useful chlorine, the chlorides of lime "and soda, and other compounds of chlorine applicable in bleach-"ing." The Patentee claims "the application to the hitherto for "the most part waste and useless residues left in manufacturing "chlorine, of caustic soda, carbonate of soda, sulphuret of sodium, "lime, hydrate of lime, carbonate of lime, muriate of soda, and "nitrate of soda, one or other of them, or otherwise," "for the "purpose of finally obtaining or acquiring the manganese con-"tained in such residue as an oxide; also, in connexion with "such processes, the application of muriatic acid, sulphuric acid, "nitrous acid gas, nitrate of soda, one or other of them, or other-"wise," "for the purpose of peroxidizing or improving the quality "of any oxide or mixture of oxides obtained" as above; also "the application of muriatic acid or sulphuric acid to the waste "residue," called "sulphuret residue," in order thereby to procure oxide of manganese, sulphurous acid, and hydro-sulphuric acid.

The Patentee also claims "the application of nitrate of soda as "the source from which the oxygen is obtained" to be applied in "producing chlorine, by passing it along with muriatic acid "through a red hot porcelain or earthenware tube;" "also the "application of carbonic acid gas to the purpose of decomposing "muriatic acid gas for the production of chlorine, to be applied to "the manufacture of chloride of lime or soda, or other bleaching "compounds of chlorine."

[Printed, 5*d.*]

A.D. 1839, February 11.—N° 7964.

DE SUARCE, Charles Gabriel Baron, and PONTIFEX, William.—"A new mode of obtaining dyes, colors, tannin, and "acids from vegetable substances." This invention consists "in "obtaining dyes, colours, tannin, and acids, by placing the vege- "table matter from which the extract is to be obtained, in a "ground or finely subdivided state, into a vessel or apparatus, of "the kind herein-after described, and forcing water or other fluids at "different temperatures, according to the extract required, through "the said matter by a force-pump or other similar power." The vessel or apparatus, referred to above, is a cylinder with a false bottom perforated with holes like a colander. The dye wood is put into this cylinder over the false bottom, and over the dye stuff is placed a lid or cover, also perforated with numerous holes, and which is forced down by a screw. The water or other fluid at different temperatures is pumped into the bottom of the cylinder, and rises through the holes in the false bottom up through the dye stuff.

[Printed, 5*d*. See Repertory of Arts, vol. 12 (*new series*), p. 95; Inventors' Advocate, vol. 3, p. 404.]

A.D. 1839, March 1.—N° 7986.

WHYTOCK, RICHARD, and CLINK, GEORGE.—"Improve- "ments in the process and apparatus for the production of regular "figures or patterns in carpets and other fabrics," "and generally "in the mode of producing party colours on yarns or threads of "worstead, cotton, silk, and other fibrous substances." To effect the object of this invention the yarns are first wound on an open reel (or a continuous layer of threads may be made to pass through a comb) in such a manner that the successive turns of the thread are laid side by side upon its surface or spokes. When the coil has been removed from the reel, the clasps [put on], which are intended only to keep the turns of the thread or threads in their regular order, remain until smaller clasps of the metal are placed upon the coil, to separate the portions "which are to be dyed of "one colour from those that are to receive a different colour." "The proportion of these patches of colour, as well as the order "in which they are to follow each other, depends on the form "and colouring of the intended pattern, as indicated by a coloured "drawing or design paper." When the clasps are adjusted to their proper distances, then "between each two clasps is inserted "a piece of bent copper, of a shape to supply as it were the "bottom and ends of a pan or vessel, while the clasps in the form

" of plates form the sides thereof, made water-tight by being " pressed together." The plates may be perforated to allow the steam to pass from one chamber to the other underneath. The different shades of dyes, which may be slightly thickened to prevent mixing, are then put into the separate vessels and the yarn dyed. Or, slips of copper may be soldered on a plate so as to form a series of small narrow chambers, over which the yarn is stretched. "Moveable divisions or slips are then made to press " down the yarn upon these fixed divisions" thereby forming separate chambers, into which the proper colours are then poured. The whole may be boiled at one time by the heated plate beneath.

[Printed, 1*s*. 5*d*. See London Journal (*Newton's*), vol. 18 (*conjoined series*), p. 254; Inventors' Advocate, vol. 1, p. 83.]

A.D. 1839, March 26.—N° 8014.

LEESE, Joseph, Junior.—" Improvements in the art of printing " calicoes, muslins, and other woven fabrics, and in certain pro- " cesses connected therewith." These improvements consist,— " Firstly, in the application of a simple apparatus or moveable " frame-work, upon, over, or around which the pieces of calicoes " or other fabrics are to be wound or distended for the purpose of " being washed white, immersed and working in a cistern or tank " of water." This apparatus is a square frame, swinging on pivots, or on wheels, placed in a cistern with a set of rollers at top and bottom, and a pair of drawing rollers at one end. The cloth to be washed is threaded open through the rollers and squeezed by the drawing rollers as it leaves the cistern.

"Secondly, in a peculiar arrangement of frame-work and rollers, " both in and outside of the dye vats, in that particular process of " the art in which the pieces are to be dyed of a dark blue colour " with indigo, called "navy blues," and in those cases also where " a white, yellow, or other colour, having been previously printed " upon them, have to be preserved, that is, the printed surface of " the cloth protected from all contact and friction during the blue " dipping or dyeing process." "A single vat may by this arrange- " ment be either used by itself or two vats may be worked " together." The arrangement consists " of two frames, which " are to work in the vats, having on them a series of rollers " arranged in a transverse or slanting direction, as in the figure. " At a considerable height above the vats, and directly over them,

" in a fixed frame, are placed another series of rollers also placed " in a slanting direction but slanted exactly the reverse way of " those in the vat." The piece is threaded on these rollers with its back to the rollers, and in its progress is alternately passed through the dye liquor in the cistern, and through the air above.

And lastly, " in the method of discharging dark or navy blues " by means of bichromate of potash and oxalic acid. This is effected " by subjecting the piece to a very intense heat suddenly " and immediately after it has passed through the oxalic acid " solution; for this purpose a stove strongly heated by fire " answers the best."

[Printed, 9*d*. See London Journal (*Newton's*), vol. 19 (*conjoined series*), p. 120; Inventors' Advocate, vol. 1, p. 115.]

A.D. 1839, June 11.—N° 8099.

POOLE, Moses.—(A communication.)—" Improvements in printing calicoes and other fabrics." These improvements relate, first, to " the mode of giving elasticity to the cylinders used in " calico and other printing machines, which supply the colour to " the engraved cylinder." The furnishing roller consists of an axis surrounded by a tube made of suitable impermeable material. The interior is fixed with strong gum water or other similar substance. Secondly, to " the application to such machinery of a " cylinder, one portion of which is elastic and the other firm." Thirdly, to " the mode of constructing wooden cylinders, and the " mode of fixing them." A series of parts are put on the axis and bound together by means of screws. Lastly, to " the application " of an endless moveable brush, working with a chain." This brush is caused to move to and fro across the cylinder, to remove the inequalities or rays left on the surface by the action of the ordinary brush.

[Printed, 1*s*. See Inventors' Advocate, vol. 1, p. 291.]

A.D. 1839, June 17.—N° 8109.

BEARD, Richard.—(A communication.)—" Improvements in " printing calicoes and other fabrics." The Patentee claims, " first, " the mode of printing two or more colors from the same printing " cylinder, by applying different colors around different parts of the

" same cylinder," which is effected by furnishing the printing roller, on which is engraved or cut the design, suitably arranged for the purpose, with different colours, from the colour trough, separated into as many compartments as there are different colours to be applied. " The color (furnishing) rollers are to be separate for each color, " but fixed on the same axis, and there are to be partitions to " separate the color on the scraper or doctor, in order to cause the " color scraped off any particular part of a roller, to be returned " into the same compartment of the trough from whence that " color was supplied." "In printing with cylinders with the " designs in relief I use furnishing coloring rollers covered with " woollen cloth, such rollers being of like length to the color " rollers which revolve in the color trough, and I use a scraper to " the color rollers, in order to prevent the colors going up unequally " to the surfaces of the furnishing rollers."

" Secondly, the mode of transposing colors on what I have " called a transmitting roller, whereby I am enabled to apply different colors to the same printing cylinder." The colour trough is divided into several compartments, according to the different colours to be employed in the design, and the colours are transferred on to the surface of the "transmitting roller" by divided furnishing rollers, as described. "The cylinder (transmitting roller) consists " of certain moveable surfaces, on to which the colour is laid, and " by means of which such colour is transmitted to the printing " cylinder, and the proper color is applied to the proper part of " the device or pattern of such cylinder (a surface printing roller)." The transmitting roller is composed of two circular framings bolted together by longitudinal ties or bolts, which move freely on a shaft or axis affixed to the framing of the machine, and are driven by cogged wheels, at a proper speed, to supply the printing cylinder with colours. Two guiding surfaces are affixed to the axis or shaft, arranged "in such a manner that they will cause the colour surfaces " to come opposite each other when receiving color, and then transpose those color surfaces according to the various positions " where particular colors are required to be given to the design on " the printing cylinder." There are also a series of slides, which move in dovetail grooves in the frames. "They are capable of " moving freely lengthwise of the roller, consequently allow of " varied change of position, according to the figure of the guide " surfaces or frames." On these slides are surfaces "covered with

" woollen cloth, or other suitable material, in order to receive the " color and readily transmit it to the printing cylinder."

"Thirdly, the mode of producing printing cylinders for relief " printing, by affixing the relief surfaces to metal cylinders." This is effected by soldering metal shapes or figures on the surface of a metal cylinder.

" Fourthly, the mode of producing printing cylinders by means " of suitable cement or composition, in substitution of wood." The cement is cast on an axis, having several projections in different directions, in order securely to retain the cylinder of cement to be cast thereon, in a suitable mould. " The cement I prefer is " as follows:—I take one part native asphaltum and one part " hog's lard and melt them together. I then take five parts of " white pitch and two parts of black pitch, which are also melted " together. These four materials are then mixed together, and I " add to the whole twenty parts of sand. I prefer silver sand and " five parts red ochre." The various shapes or figures are inserted into the surface of this cement roller by pressure, while they are heated by a soldering iron.

[Printed, 1*s*. 8*d*. See London Journal (*Newton's*), vol. 24 (*conjoined series*) p. 409; Inventors' Advocate, vol. 2, p. 19.]

A.D. 1839, June 26.—N° 8133.

DUCÔTÉ, PIERRE AUGUSTE.—" Improvements in the art of " printing on paper, calicoes, silks, and other fabrics." The first improvement " is the application of stone rollers or cylinders as the " printing surfaces; and for the purposes of this invention sound " pieces of lithographic stone are the best, and are to be preferred " for making the rollers." The stone roller is turned, polished, and etched by the usual means. The following composition is given for drawing on the stone those parts to be protected from the action of the acid (nitric acid of about eight degrees strength), " viz., two parts pure white wax, four parts of asphaltum, two " parts of Burgundy pitch, two parts of soap, melted and incor- " porated together by a gentle heat." This composition, when cool, is to be reduced to the thickness of thin honey with a mixture of equal parts of linseed oil and oil of turpentine.

Another part of this invention " is the mode of constructing and " applying the clamps or holders for holding fabrics," so that in printing the fabric " twice or oftener with the same device " " the

" second or further impression of the drawing, pattern, or device, " or parts thereof, shall, every time they are printed, fall in truly " with the first impression." This is effected by means of toothed wheels fixed on each end of the axis of the roller, working into travelling chains, which travel with the fabric. The chains carry a series of clamps or holders, " and each of the clamps or holders " has a spring by which the two plates are retained securely " together when the edges of the fabric are between them." " The chains employed should be longer, or at least as long, " as the fabric which is to be printed, in order that when the fabric " has passed once through the machine, it may be caused to " enter and pass again through the same or other machine."

[Price, 7*d*. See Inventors' Advocate, vol. 1, p. 243.]

A.D. 1839, July 20.—N° 8159.

POOLE, Moses.—(A communication.)—" Improvements in casting for printing purposes."

This invention " consists of a mode of obtaining castings of surfaces for printing purposes by means of flexible moulds." "The " materials of which I prefer these flexible moulds to be composed " are a composition of paper, with paste and potters' earths, well " pulverized. I employ them as follows:—I take a sheet of paper " and cover it over with glue; on to this I put a thin coating of a " composition of equal parts of paste and well powdered potters' " earth, mixed in water to the consistence of paste; on to this I put a " sheet of tissue paper, and then another coating of the composition, " until the whole assumes the required thickness, about one-eighth " of an inch. The last sheet of paper should have applied to it a " coating of sweet oil. I then take the type or other surface from " which I wish to obtain an impression or mould, and place the " flexible material (before it is dry) on the surface thereof, and by " pressure in any convenient manner obtain an exact cast of the " page or form of type. This mould, together with the form of " type, are allowed to stand for about two hours, when the mould " may be removed from the type." Casts are to be taken from the mould thus produced.

[Printed, 3*d*. See Inventors' Advocate, vol. 2, p. 133.]

A.D. 1839, August 1.—N° 8175.

DE NORMANDY, Alphonse René le Mire.—" Manufactures of ink and dyes."

Firstly, "I claim the use of sulphate of indigo in combination with the (following) substances, as a corrective of the green or brown precipitates yielded by the (following) astringent substances, when combined with sulphate of iron. I take a solution made in the usual way, either of sumac, elmwood, chestnut, beach, willow, elder, oak, plumb, sycamore, cherry, poplar wood, catchu," or other extract, "containing gallic acid and tannin, or either." "To this I add a certain quantity (varying according to the shade desired) of campeachy wood, of acetate and hydrate of deutoxide of copper, of sulphate of alumina, and of potash, of sulphate of protoxide of iron," and gum arabic; also a variable quantity of sulphate of indigo.

Secondly, I claim the method of acting and "operating upon the decoction of campeachy wood, by means of acetate and hydrate of deutoxide of copper, with sulphate of alumina and potash, for making a purple dahlia coloured fluid for writing or dying. The colour so produced is called the "King of Purples."

Thirdly, I claim the use of bioxalate of potash, with or without a solution of tin, and the solution of tin with bioxalate of potash, as a method of rendering Chinese blue applicable to the manufacture of a blue writing ink, stain, or dye. For this purpose "I take Chinese blue, that is, the cyanoferruret of iron which contains no alumina, 3 drachms, and grind it in water with oxalate acid or bioxalate of potash, 1 drachm, and gum 1 drachm. It is better to saturate first the 3 drachms of Chinese blue with one drachm solution of tin."

"Fourthly, I claim as my invention the method of combining together, and the use of catechu with extract of hœmatoxylon and sulphate of indigo, in the] production of a solid, semi-solid, and soluble writing ink.

"And, fifthly, I claim the application of oxalic acid in combination with carbon, cochineal, and sulphate of indigo, for the purpose of forming an indelible writing ink, which known chemical reagents cannot remove or obliterate."

[Printed, 4*d*. See Repertory of Arts, vol. 12 (*new series*), p. 237; London Journal (*Newton's*), vol. 16 (*conjoined series*), p. 138; and Inventors' Advocate, vol. 1, p. 98.]

A.D. 1839, August 1.—N° 8183.

MERCER, John, PRINCE, John Dyneley, the younger, and BLYTHE, William.—"Improved processes to be used in the

" printing, dyeing, or colouring of cotton, woollen, silk, or other " cloths and yarns."

This invention consists, " first, in the use of arseniates or phos- " phates, together with glue, size, or jelly, or gellatine from bones, " linseed meal, as substitutes for cowdung in what is usually " called the dunging process ; secondly, the use of baths of arse- " niates or phosphates dissolved in water, to pass certain kinds of " printed goods through (steam, chemical, or topical colours) in- " stead of the ordinary baths of chalk or lime, or weak carbonated " alkalies; and, thirdly, the use of phosphoric or arsenic acids, " arseniates and phosphates, mixed with iron and aluminous " mordaunts, previous to their being applied to goods."

[Printed, 4*d*. See Inventors' Advocate, vol. 2, 134.]

A.D. 1839, August 15.—N° 8195.

MILLER, JAMES CAPPLE.—" Improvements in printing cali- " coes, muslins, and other fabrics." "These improvements con- " sist in a novel arrangement and construction of mechanism or " apparatus, whereby the pattern or design may be printed (in " two, three, four, or more colours at one time, by means of blocks) " upon the goods or fabrics by the agency of machinery worked " by steam or other adequate power." In this machine the printing table, instead of laying flat, is placed on its end and elevated, over the surface of which the fabric to be printed is caused to pass at proper intervals. The blocks, of which there are four in the drawing, are arranged in a sliding frame edgeways, and parallel to each other. The colour is supplied to each block by a separate endless sieve cloth, which revolve between the furnishing rollers in the colour box, and over the furnishing tables or beds. The blocks are caused to advance by means of wheels and pinions to these furnishing tables, where they are supplied with colour; then to recede, when the sliding frame upon which they are placed is elevated, by a chain and lever attached to a quadrant, so as to bring the blocks opposite the printing table. By the agency of another wheel the blocks are then made to impress the pattern upon the surface of the fabric at once, in four or more different colours; then to recede, and to descend again for a fresh supply of colour. The cloth is now drawn forward for the space of the exact width of one of the blocks or sketch of the design, by means of wheels, and passed around heated cylinders, if necessary, and between the delivering rollers out of the machine. If the machine be made wide enough, as well as the blocks, two or more widths of the fabric may be printed at one time. Between the blocks are placed springs which cause them to separate from each other when they are about to supply themselves with colour; but when they are about to print the springs are compressed so that the blocks may come close together.

[Printed, 1*s.* 4*d.* See London Journal (*Newton's*), vol. 21 (*conjoined series*), p. 242; Inventors' Advocate, vol. 2, p. 163.]

A.D. 1839, August 26.—N° 8210.

MUIR, JOHN, Junior.—"Improvements in the apparatus con-" nected with the discharging press for conducting, distributing, " and applying the discharging liquors and the dyeing liquors." The first improvement is in "the arrangement of the back of the " perforated plates, and in the branders required for conducting " the various discharging liquors or dyeing liquors for producing " two or more colours in one pattern." The brander, formed of " wood, is divided by thin feather edges of copper or other suita-" ble material, which are inserted into grooves in the wood, and " similar grooves are formed in the back of the plate, thus form-" ing enclosures or separate chambers, through which different " discharging liquors or dyeing liquors may be passed without " interfering with the remainder of the pattern;" "or the two or " more distinct colours may be conveyed by separate canals or ducts, " corresponding with those at the back of the plate." "The " lower perforated plate should be provided with branders similar " to those of the upper plate, and each liquor must be distributed " and received in a separate series of canals and pipes to prevent " admixture." "In producing three or more colours I make use " of additional branders, placed one above the other, by which, if " necessary, the canals or ducts for conveying each separate liquor " may be formed in a separate brander, and thereby any mixture " may be more securely prevented."

The next part of this invention consists in "an improvement in " the forcing apparatus." There is an air-tight cylinder which can be filled with steam, connected by a pipe to the lower brander or air-tight vessel, into which the discharging liquors or the dyeing liquors are to be received as soon as they have been forced through the goods. The liquors being applied to the top brander, the steam is condensed in the cylinder by means of a jet of cold water, when the pressure of the atmosphere forces it through the goods in a more efficient and perfect manner than when the ordinary exhausting pump is used; or the liquor may be propelled and forced through the goods by the direct force of steam.

Lastly, this invention consists "in inserting one or more inter-
" mediate perforated plates at one time in the discharging press,
" by which the pattern may be imparted to a greater amount of
" goods than heretofore at one and the same operation."

[Printed, 4s. 10d. See Inventors' Advocate, vol. 2, p. 196.]

A.D. 1839, November 21.—N° 8278.

DUCOTE, Pierre Auguste.—"Improvements in printing
" china, porcelain, earthenware, and other like wares, and for
" printing on paper, calicoes, silks, woollens, oilcloths, leather,
" and other fabrics, and for an improved material to be used in
" printing."

This invention consists in "the mode of printing china, porcelain,
" earthenware, and other like wares (which are usually printed,)
" by means of transferring impressions from lithographic stones,"
" or from zincographic or other metal surfaces" by applying
" impressions obtained from sunk surfaces of stone," "and from
" biscuit surfaces;" also in "the application of bird-lime or
" vegetable gluten in printing china, porcelain, earthenware, (or
" other like wares usually printed.)"

It is also claimed as part of the invention "that the mode of
" obtaining surfaces in relief on flat surfaces of stone is applicable
" to the printing on paper, calicoes, silk, woollens, oilcloths,
" leather, and other fabrics, such flat surfaces of stone so engraved
" in relief being used similarly to wood blocks for printing." The surfaces in relief referred to above, are obtained by the known methods of etching, and the stone recommended to be used is the German lithographic stone.

[Printed, 5d. See Inventors' Advocate, vol. 2, p. 355.]

A.D. 1839, December 4.—N° 8296.

CRONIER, Pierre Narcisse.—(Partly a communication.)—
" Improvements in filters, and in the means of cleansing the

" same, and for separating, colouring, and tanning matters " by filtration, or for improvements in tanning, or employing " tanning matters by filtration." The filter referred to consists of a "copper case," in the interior of which are placed in series a "sponge;" a "partition or false bottom," working tight in the copper case; "projections on which the bottom " of the sections rest;" "beds of sand and "stone;" and " empty spaces between the sections of the filter;" with suitable pipes and taps to supply and take away the liquid from each section. "The water should be supplied from a reservoir placed " at a certain elevation, and will enter at the upper open cock, " and run out at the lower one in a filtered state." The " copper case" has a tight lid, through which works a rod for the purpose of actuating a "compression plate," and during the cleansing of the filter, which is effected by reversing the direction of the water, this compression plate "should be kept in motion to " express the slime or dirt contained in the sponge." "This invention also consists in using as a filtering medium the materials " from whence the fluid to be filtered is obtained; for example, in " clarifying wine and vinegar" the Patentee uses the "kernel of " apples, or the stone of bruised raisins;" "for clarifying beer, " the hop or the grains;" "oils should be filtered either by using " oil-cake, or by the stone of the olive well bruised," &c. The Patentee also describes his mode of "tanning by filtration."

[Printed, 5*d*. See Inventors' Advocate, vol. 2, p. 371.]

A.D. 1839, December 9.—N° 8302.

POTTER, HAROLD.—This invention consists "in printing " calicos, muslins, or paper for paper hangings, by means of what " is known among calico printers as a surface machine, having a " colour box or colour boxes with two or more distinct colours in " the same box, but so arranged that the colours are kept distinct " from each other, and supplied distinctly and separately, but " simultaneously to the same endless sieve, and from the sieve to " the cut roller or rollers. And the said invention further consists " in the application and use of engraved or cut or figured copper " or other metal rollers, for printing paper hangings; and by " means of these metal rollers I am enabled to produce patterns " showing a delicacy of light and shade which cannot be had by " block printing." The colours are supplied to the above endless sieve by a furnishing roller, cut down at places to allow the partitions of the colour box to be inserted between.

[Printed, 5*d*. See Repertory of Arts, vol. 14 (*new series*), p. 98; London Journal (*Newton's*), vol. 19 (*conjoined series*), p. 182; and Inventors' Advocate, vol. 2, p. 386.]

A.D. 1840, January 28.—N° 8364.

PONTIFEX, William.—This invention "consists in evapo-"rating such fluids as contain colouring matter fit for dying, "printing, or other manufacturing purposes, in vacuo, in order "to obtain the same in a concentrated or in a dry form, as may "be most suitable to the purpose for which the said colouring "matter is required, without injuring the colour or other pro-"perties thereof by carbonization, or other injury arising in any "way from exposure to greater heat than is necessary for the "purposes aforesaid."

[Printed, 3*d*. See London Journal (*Newton's*), vol. 23 (*conjoined series*), p. 355; Mechanics' Magazine, vol. 34, p. 13; and Inventors' Advocate, vol. 3, p. 84.]

A.D. 1840, March 7.—N° 8415.

KOBER, Charles.—"Improvements in fixing colour in cloth." The Patentee claims, "first, the use of bichromate of potash as a "substitute for copperas, alum, and other mordants." "I find "the use of the bichromate of potash most successful in preparing "the wool for the reception of the colouring ingredients, and "particularly for fixing logwood, fustic, and wold, whilst red "woods and madder are less advantageously acted upon. I "generally employ three pounds weight of bichromate of potash "for preparing one hundred pounds weight of scoured wool, and "I sometimes add two pounds weight of argol or tartar." The wool is to be boiled in this for an hour and a half, and next day dyed to the shade required.

"Secondly, the obtaining green colours perfectly fast in acids, "alkali, and air, by dying the wool blue and then manufacturing "the cloth from the blue wool, so as to make it what is called "partly finished cloth, with a white or light coloured list and "head ends, and then adding the yellow wares or ingredients to "the cloth instead of to the wool." For dyeing the yellow part in the usual way, fustic is preferred, the cloth being prepared with tin solution.

"Thirdly, the use and application to indigo" (in the vat) "of " soda and bran, or soda ashes and bran, either by themselves or " mixed with woad and madder, whereby (the indigo is 'sprung' " and) the colour is fixed to the wool better and cheaper than by " the use of woad and madder alone."

[Printed, 4*d*. See Repertory of Arts, vol. 14 (*new series*), p. 277; London Journal (*Newton's*), vol. 24 (*conjoined series*,) p. 187; and Inventors' Advocate, vol. 3, p. 179.]

A.D. 1840, March 7.—N° 8419.

MALTBY, William, Junior, and CUERTON, Richard, Junior.—Improvements in extracting and concentrating the " colour, tannin, and other matters contained in vegetable and " animal substances."

The first claim made by the Patentees " is the mode of extracting " colouring, tannin, and other matters from vegetable and " animal substances by causing the water or liquid (contained in " the heating boiler or vessel,) to be raised and caused to flow " over from the boiler or vessel, by means of the (pressure of the) " steam and heated air therein, on to the substance under " operation (contained in a separate vessel); and return again " (through a pipe by means of the condensation of the steam) into " the boiler continually heated, and to be again and again raised " therefrom, and caused to flow over fresh quantities of the substance from which the extract is to be obtained."

" Secondly, the raising the liquor from the (heating) vessel by " means of pumps" in place of the pressure of steam as above described.

Thirdly, " the application of a refrigerator or condensor (of " ordinary form) to the tank or vessel wherein the substances " are operated on, in order to condense and convey back the " (volatile) products evaporated therefrom."

" And, lastly, we claim the mode of treating extracts of vegetable " matters to obtain colouring matter and tannin, by rendering the " chemical matters, by which the precipitate has been obtained, " insoluble, and thus setting the colouring matter and tannin " free," and in a concentrated form. As, for example, the precipitate from logwood liquor with acetate of lead may be treated with its equivalent of sulphuric acid.

[Printed, 9*d*. See Repertory of Arts, vol. 15 (*new series*), p. 12; and Inventors' Advocate, vol. 3, p. 180.]

A.D. 1840, March 17.—N° 8434.

BAGGS, ISHAM.—" Improvements in engraving, which improvements are applicable to lithography."

The Patentee claims " a new mode of constructing the swinging " frame, by which it is rendered capable of doing several plates (by " means of etching or engraving) at one time of the same or " different sizes; also the combination of the swinging frame with " a pentograph, or other such like instrument, for reducing or " enlarging drawings." The swinging frame consists of two centre carriages fastened to a horizontal piece which is attached to the frame; " there are two vertical bars suspended from centre " points, thus forming an universal joint. There is an iron frame " suspended by the two centre carriages, having an eccentric bar " connected therewith, and to which are suspended, by means of " small cords, the tracing or cutting points, by the action of " which they are lifted from the surface of the plate during the " process of either cutting or etching, as may be required. The " moveable tables, on which the plates to be engraved are made " fast by means of the clamps or dogs, and which may be shifted, " so as to suit the height of the etching points when they are " adjusted to the size of the drawing required." " On these frames " are placed any number of fixed centre carriages, from which are " suspended the tracing or cutting points." " At the bottom of the " vertical bars, and attached by means of centres, is a frame, and " to which is fixed the centre carriage; a lever works at one end " on this centre, and near the other is the universal joint through " which the bent tracing point works, and which is used for " tracing from the original drawing or design. In applying this " apparatus to the purposes of lithography, I substitute unctuous " or other suitable points for the tracing points, and lithographic " stones for plates."

[Printed, 1*s*. 7*d*. See Repertory of Arts, vol. 15 (*new series*), p. 65; Mechanics' Magazine, vol. 33, p. 348; Inventors' Advocate, vol. 3, p. 227.]

A.D. 1840, March 25.—N° 8449.

KNIGHT, SAMUEL.—" Improvements in machinery or apparatus " for boiling, bricking [bucking?], or scouring, for the purpose " of preparing and assisting the process of bleaching and dyeing " cotton, linen, and other fabrics, and fibrous substances."

These improvements consist in an arrangement of apparatus,
" so contrived that the goods or other fibrous substances to be
" operated upon may be packed in suitable vessels or chambers,
" connected, by means of pipes furnished with suitable stopcocks,
" with other vessels containing the alkaline solution commonly
" employed in such processes, one of which vessels or cisterns is
" to be filled with the alkaline solution, and heated until the
" liquor forces its way through the connecting pipes and enters the
" vessels or chambers containing the goods or fabrics to be
" operated upon, through which it is exhausted and caused pass
" rapidly by means of the other receptacle of the alkaline solution
" being nearly empty and in a state of vacuum, the fire under the
" full vessel being kept up, whilst that under the empty one is
" allowed to lower in temperature. When the alkaline solution
" has passed entirely through the goods, and the vessel which was
" first filled has become nearly empty, the stopcocks are all to be
" reversed, and the fire which was under the empty boiler must be
" raised in order to force the alkaline liquor back again through
" the goods, and so on alternately, repeated as often as the goods
" will be found to require it."

[Printed, 8*d*. See London Journal (*Newton's*), vol. 19 (*conjoined series*), p. 346; Inventors' Advocate, vol. 3, p. 213.]

A.D. 1840, March 30.—N° 8458.

MARTIN, Henry.—" Improvements in preparing surfaces of
" paper." These improvements consist in " preparing surfaces of
" paper by combining thereon a coating of oil paint with subse-
" quent embossing; or with printing designs thereon for paper
" hangings; or with subsequently glazing or planishing; and
" also in the mode of producing a coating of oil paint on paper by
" means of rollers." For this purpose, by preference, " I lay the
" oil paint or colour on to the paper by passing the paper between
" two rollers, together with an endless felt or other fabric. This
" felt in its revolution is supplied with oil colour as it passes into
" a trough and under a roller partly immersed in the oil, paint, or
" colour therein, a scraper being placed to act upon the felt as it
" ascends, to prevent it being too much charged with oil, paint, or
" colour, and serving to keep the supply of colour regular. The
" paper may be passed between the rollers in this manner two or
" three times, according to the quantity of colour it may be

“ deemed necessary to lay on. By this mode of laying on the oil
“ paint I produce a fine and regular surface. Having obtained
“ paper coated with oil paint by the above or such like means, I
“ submit it when dry to the operation of embossing, by passing it
“ between properly engraved rollers, or I use dies, as is well
“ understood. In manufacturing paper-hangings, the paper
“ having received its coating of oil paint of the colour the ground
“ or surface is intended to be, it is next to be printed by blocks
“ or other surfaces, as is now generally practised. When making
“ paper-hangings in imitation of marble, I prefer to resort to that
“ mode wherein the design is produced on a liquid, as is well
“ understood, and I prefer to take the impression on to the
“ painted surface of the paper before that painted surface is dry;
“ by this means the effect will be improved, as it allows of softening
“ off by a brush. For the purpose of producing the glazed or
“ enamel-like surface,” “ I lay the paper upon a woollen cloth, or
“ cotton velvet, or other similar soft material, to form a firm but
“ soft bed. I then take a pallet knife or a trowel having a good
“ smooth or polished surface, and lay it flat on the painted surface
“ of the paper, and pass it along with a slight pressure; the
“ colour being set it yields to the pressure, and a glaze is
“ thereby produced, or other means may be resorted to for
“ glazing. When the surface is dry it may be heightened by the
“ well known means used for glazing or planishing.”

[Printed, 4*d.* See Repertory of Arts, vol. 16 (*new series*), p. 50; London Journal (*Newton's*), vol. 23 (*conjoined series*), p. 17; Mechanics' Magazine, vol. 33, p. 382; Inventors' Advocate, vol. 3, p. 229; Engineers' and Architects' Journal, vol. 3, p. 396, and vol. 6, pp. 305 and 400.]

A.D. 1840, July 6.—Nº 8466.

BEARD, Richard.—(A communication.)—“ Improvements in
“ printing calicos and other fabrics.” The first part of this
invention is “ the mode of forming a printing cylinder, wherein
“ the parts of the printing surface are caused to move after
“ having received colour, in order to assume their proper
“ position for printing the pattern.” The cylinder referred to
is a surface printing roller, but instead of being made of one
piece, it is composed of several longitudinal strips engraved in
relief attached to sliding bars, which, by means of a guiding
surface and springs placed inside move backwards and forwards

as the cylinder revolves. Various colours are supplied to the surface of the cylinder by known means, or by a series of small colour sieves each revolving in a separate or divided colour trough. " The various parts of the engraved surface which are on separate " sliding bars, and are to receive the same colour, are caused to " assume a proper position in succession to take colour from the " same surfaces, and then to move into their proper places to make " up the proper printing surfaces."

Secondly, " the mode of forming printing cylinders, whereby the " various parts of the engraved surfaces are caused to move from " and to the centre of the cylinder, in order to their standing " prominent when receiving colour." The surface of this cylinder engraved in relief, " is carried by many bars, each bar independent " of its neighbour," and each of these bars is caused by an internal arrangement of excentric grooved plates, &c., to " stand prominent " and receive its colour (from the common endless sieve) separately, " and then get out of the way by retiring towards the centre of " the printing cylinder at the time when it is passing other colour " surfaces, and which are intended to give off colour to other bars " of engraved surfaces."

Thirdly, " the mode of applying colour by moveable mouth " pieces;" also " the mode of applying colour by a colour sur- " face made of parts capable of moving to and fro from the centre " of the roller, and the means of removing colour from a printing " cylinder by moving mouth pieces and doctor." The " moveable " mouth pieces" constitute a species of box doctor divided into as many compartments as there are colours to be printed at one time. The colour surface for applying colour " is simi- " larly constructed to the printing cylinder which constitutes the " second part of the invention; but in this case, in place of the " bars which are projected out from the centre of the roller carry- " ing printing surfaces, the bars are to carry surfaces of felt or " blanket," by which the colour is transferred from the endless sieve on to the printing roller.

Fourthly, " the modes of making cast metal printing surfaces" consists in making sheet zinc, cut through or perforated with the desired pattern, act as a mould, the pattern being filled up with an alloy of metals easily fusible and not easily acted on by acids. When acid is applied to the surface of this compound plate or roller the zinc is dissolved down below the surface of the alloy. It may then be used to print in relief or otherwise, according to the nature of the pattern.

[Printed, 2*s*. 1*d*. See Mechanics' Magazine, vol. 33, p. 429; and Inventors' Advocate, vol. 3, p. 244.]

A.D. 1840, May 5.—N° 8491.

MATTHEWS, THOMAS GADD, and LEONARD, ROBERT.—" Improvements in machinery or apparatus for sawing, rasping, or " dividing woods or tanners' bark." These improvements consist in "the application of circular saws, by means of which we are " enabled to reduce wood or bark to a finely divided state, for the " use of dyers or tanners, in a more economical and expeditious " manner than has been effected heretofore. The peculiar feature " of the invention is combining or attaching a number of circular " saws upon a rotary spindle, in such an arrangement that, " although not in immediate contact they are placed so nearly " contiguous to one another that when any piece of wood or " quantity of bark is brought under their operation it will be " sawn, rasped, or reduced to a finely divided condition without " leaving any veneer."

[Printed, 9*d*. See Repertory of Arts, vol. 17 (*new series*), p. 24; London Journal (*Newton's*), vol. 18 (*conjoined series*), p. 81; Mechanics' Magazine, vol. 33, p. 479; Inventors' Advocate, vol. 3, p. 307.]

A.D. 1840, May 12.—N° 8502.

HARRIS, RICE.—This invention consists, first, in "the manu- " factures of cylinders, plates, and blocks, made of or coated or " covered with glass or enamel, or any other vitrified substance " containing silica and boracic acid, or either of them, sufficient " to render such cylinders, plates, or blocks capable of being " etched by the action of hydrofluoric acid, alone or in combina- " tion with ammonia or other base, and to be used in printing or " embossing cotton, linen, woollen, silk, or other similar fabrics."

Secondly, in "the use or application of tubes or linings for " cylinders made of copper, brass, or other expensive materials, " for printing, or embossing cotton, linen, woollen, silk, and other " similar fabrics, by which part of my invention such cylinders are " made with a smaller quantity of the more expensive materials of " which they are now usually composed, without requiring an in- " crease in the weight or size of the axes or mandrills to be used with

" the same." The tubes or linings preferred for putting within these thin copper cylinders are made of cast or wrought iron, compressed wood, or other suitable material, wrought iron being considered the best.

[Printed, 9*d*. See Repertory of Arts, vol. 17 (*new series*), p. 30; Mechanics' Magazine, vol. 33, p. 494; and Inventors' Advocate, vol. 3, p. 323.]

A.D. 1840, May 12.—N° 8503.

NEWBERRY, George John.—" Improvements in rendering " silk, cotton, woollen, linen, and other fabrics waterproof."

This invention relates chiefly to the modes by which the Patentee prepares fabrics, so that they shall become waterproof, and be coated on one side only with the varnish (see Abridgments on gutta percha and caoutchouc). The Patentee proposes to ornament prepared fabrics of this character by printing them in compositions, by placing the fabric and depressing it on the surface of a large block similar to a table and provided with the composition; or the same effect may be produced by using " perforated pattern " plates of suitable material."

[Printed, 5*d*. See Repertory of Arts, vol. 17 (*new series*), p. 229; London Journal (*Newton's*), vol. 19 (*conjoined series*), p. 37; Mechanics' Magazine, vol. 33, p. 495; Inventors' Advocate, vol. 3, p. 340.]

A.D. 1840, June 9.—N° 8534.

HAMPSON, Robert.—The first claim is for printing " with " blocks on woven fabrics of cotton, &c., by means of machinery, " apparatus, and implements;" and, also, " the combination and " arrangement of mechanical agents and contrivances, whereby " the block is caused to descend in a perpendicular direction, and " with its face parallel to the printing table, in order, first, to take " up the colour from the sieve or sieves; and, secondly, to im" press the pattern or design on the fabric to be printed." This is effected by suspending the blocks immediately over and parallel to the printing table where it is attached to a cross frame. This frame is guided and kept horizontal in its ascent and descent within the strong upright frame of the machine by means of the centre rod working freely upwards and downwards in a hole in the centre of the arms, by which the top of the upright frame is braced together, and also by the " straight edges at each corner of " the frame." The cross frame (on which is fixed the block) is suspended by a band (passing over a pulley) and counter weight, "so that by raising the counter weight the cross frame and block "descend by their own gravity, and the block imparts the pattern "to the fabric on the table," or supplies itself with color from the sieves hereafter described.

The Patentee further claims "such colouring apparatus, in "which several sieves are separated and held apart, to admit of "the several colours being distributed and traced or spread "thereon, without admixture or interference one with another, "and whereby the sieves are afterwards closed or brought into "juxtaposition, in order to the colors being taken up by the block, "so as to produce at one impression of the block a pattern or "design, or parts of a pattern or design, in several colours, "arranged contiguous or near to each other," "and which colouring apparatus may be also used with the common hand block "or otherwise." The sieve so constructed is teared in various practical ways, and caused to traverse to and fro (under the block) by means of a railway and carriage running thereon.

[Printed 1*s*. 8*d*. See Repertory of Arts, vol. 15 (*new series*), p. 1; London Journal (*Newton's*), vol. 20 (*conjoined series*), p. 87; Mechanics' Magazine, vol. 33, p. 607; and Inventors' Advocate, vol 3, p. 389.]

A.D. 1840, June 20.—Nº 8549.

DE LA RUE, Thomas.—"Improvements in printing calicos "and other surfaces."

These improvements relate, "first, to certain modes of applying "tissues or fabrics of wire as printing surfaces." The wire tissues or fabrics employed may be either plain or figured, and a very improved result is obtained by submitting the wire fabrics to pressure before using them as printing surfaces; or two sheets thereof may be jointly pressed, whereby the effect of watering is obtained. The wire cloth may be used for printing in various ways, first, by nailing a sheet of it firm on the face of a hand block, the colour being applied "in like manner to what ink is applied in type or "surface printing;" or it may be sewn in the form of a jacket to fit the cylinder and fastened thereon at the edges by means of a hoop or ring; "or otherwise I employ an endless web of the wire "tissue or fabric of the required pattern, which is made to pass "over a cylinder, and in either case the wire web is made to press "against a jacket or an endless belt of felt passing over a cylinder

" as in the ordinary calico printing machines." The colour is applied to the surface of the wire cloth by furnishing rollers in the usual way.

Secondly, " to the application of electrotype plates obtained from " patterns of wire tissues or fabrics." These plates are obtained by well known electrotyping processes, from moulds made in sheet lead of the wire fabric. The wire fabric being pressed into the surface of the lead by rollers and hydraulic power. The plates so obtained are used in place of the wire fabric; or the lead mould may be carefully bent on an iron mandrell into the form of a roller with the impressed surface inside, when a copper cylinder will be produced by the electrotyping process.

Thirdly, " to a mode of printing on calico and other surfaces " several colours at one time by a single operation," which are made to blend and produce the effect known as " rainbowing," either in straight lines or in curves. To rainbow in straight lines " take the ordinary doctor roller of a paper printing machine, " and turn in it any number of grooves about one sixteenth of an " inch wide, and all to one depth, say one eighth of an inch. " Then on the doctor blade fit by rivets a corresponding number " of plates of steel or brass cut to proper form and of such thick- " ness as to accurately fit the grooves." The various colours required are put into the divisions of the doctor and worked in the ordinary manner. The block is guided so that it always dips in one place. The method of inking in curves consists in using conical rollers for inking.

[Printed, 1*s*. 8*d*. See Inventors' Advocate, vol. 4, p. 21.]

A.D. 1840, June 24.—N° 8554.

LEESE, Joseph, Junior.—" Improvements in the art of printing calico and other surfaces." These improvements consist, " firstly, in the substitution of a novel description of fabric or " material to be employed in the art of printing instead of the " ordinary blanket, felt, or other lappings now commonly used " upon printing machines and tables." This fabric or material is " composed of one, two, or more (I prefer several) thicknesses or " folds of common calico or other cloth, upon and between which " are to be spread thin layers or coverings of india-rubber, " applied in solution in a similar manner to preparing those water- " proof cloths now commonly called 'Macintosh.' " " This fabric

" may also have upon its surface a thick layer or coating of " india-rubber," and in this case may be readily washed without removing it from the machine.

" Secondly, in a novel arrangement of apparatus or machinery " for printing calicos, &c., with blocks, either in combination with " the ordinary cylinder printing machine or separately." The first apparatus described under this head, consists " of two stout " frames, carrying or supporting two cylinders or bowls, one at " each end, around which a continuous band of the before described improved fabric is passed, and which may then be drawn " to its required tension by means of a screw." Adapted, between the bowls and behind the fabric, are one or more small block tables. The printing blocks are attached to a pinion which works in a rack, and are thereby caused to reverse their faces as they are moved towards the endless sieve cloths, and return to their original position as they approach the cloth to be printed. The cloth to be printed moves with the " new fabric."

The second apparatus described is a "rainbowing machine." The improvement consists in supplying different shades of colour to the endless sieve of a surface printing machine by means of discs or rollers mounted on an axis " which, as they revolve, dip " into the colour boxes, and, being furnished with pins or teeth, " they thus take up the colours out of the colour boxes, and deposit them upon the sieve cloth."

And, lastly, these improvements consist "in substituting any " fabric, after having it prepared or coated on one side with india-rubber, for the hatting or felt commonly used in cutting and " forming printing blocks and surface rollers, &c.;" also "in placing at the bottom of the engraving of a deeply engraved copper " cylinder or roller any cloth or fabric as may be most suitable, " previously prepared with a coating of india-rubber on one side; " the object of this is to produce an even solid print, and also to " furnish a good supply of colour to the piece."

[Printed, 10*d*. See London Journal (*Newton's*), vol. 20 (*conjoined series*), p. 343; Mechanics' Magazine, vol. 34, p. 44; and Inventors' Advocate, vol. 4, p. 21.]

A.D. 1840, August 27.—N° 8610.

LOCKETT, Joseph.—" Improvements in manufacturing, preparing, and engraving cylinders, rollers, and other surfaces for "printing or embossing calicoes and other fabrics." These improvements consist, firstly, in the "application of the force or "power usually termed galvanic or voltaic electricity, and by "means of the same force or power re-coating, covering, or thick-"ening those cylinders, rollers, or other surfaces which have been "manufactured by this or any other process, the engraving or "etching upon which is required to be obliterated, or which may "have been reduced by former use, or to manufacture a new "roller or cylinder by the same process." To form a new roller or cylinder, the copper is deposited by the usual electrical means on the surface of a mould or a shaft of the required diameter; or a copper roller may be increased in its diameter by the same means.

Secondly, they "consist in a peculiar method of preparing "surfaces by galvanic or voltaic electricity applicable to cylinders, "plates, or blocks for printing or embossing calicoes and other "fabrics." The object is "to obliterate or stop out a portion of "the already engraved ground, in order that portions may be "rendered plain and according to a given pattern or design." "To effect this object I give those portions of the surface which it "is intended shall retain the originally engraved ground a coating "of varnish or other protecting substance, and leave exposed the "pattern or portions of the surface it is intended should be filled "up with copper, to be deposited by the electrical action."

Thirdly, they consist in a "rotary cutting or turning apparatus "subsequently employed upon rollers or cylinders so manufac-"tured or prepared," "for the purpose of cleaning, filing, or "turning off the superfluous portions of the copper thus depo-"sited." This rotary or filing tool is applied to the ordinary slide lathe or the engraving machine.

[Printed, 10*d*. See London Journal (*Newton's*), vol. 19 (*conjoined series*), p. 89; Mechanics' Magazine, vol. 34, p. 221; and Inventors' Advocate, vol. 4, p. 150.]

A.D. 1840, October 10.—N° 8696.

LAWES, THOMAS.—"Improvements in the method or process "and apparatus for cleansing and dressing feathers."

This invention consists, "firstly, in the application or use of "machinery for washing and cleansing feathers;" and, secondly, "in an arrangement of apparatus for dyeing and dressing the "feathers after they have been operated upon by washing."

The washing apparatus may consist "of a long cylindrically formed stationary vessel," cased in the inner side with a sieve or strainer, and with a trough at the bottom. A shaft mounted with beaters is caused to revolve in the interior where the water and feathers to be washed are placed; the dirt being beat out falls down between the strainer and outer vessel, and may be collected in the trough. The apparatus for "drying and dressing" "the "feathers" may consist of a "metal cylinder" which is caused to revolve over a fire, but protected from its direct action, by means of a casing interposed, partly made of iron and partly of brickwork. The revolving cylinder has spokes and arms inside, which break the lumps or bundles of feathers placed there for the purpose of being dried. The cylinder may be placed inside or within one or more other cylinders, and be thus protected from the direct action of the fire.

[Printed, 3d. See London Journal (Newton's), vol. 19 (*conjoined series*), p. 182; Mechanics' Magazine, vol. 34, p. 422; Inventors' Advocate, vol. 4, p. 325.]

A.D. 1840, November 25.—Nº 8721.

PHILIPPI, Frederick Theodore.—"Improvements in the "art of printing cotton, silk, and other woven fabrics." The Patentee claims, "firstly, the combination and application of the "solution of lead as in yellow Nº 1; and the blue pulp produced "by the means under the head of blue; and any or all combination of them with each other, or any other known mordants "generally used in the art of calico printing." The standard yellow No. 1, is composed "of three pounds of nitrate of lead and "three pounds of brown or white sugar of lead (acetate of lead) "dissolved in one gallon of boiling water, and thickened with "calcined farina or any other known thickening." The blue pulp is made thus:—"To about thirty gallons of water take four pounds "of ground indigo, six pounds of copperas (crystalized proto-"sulphate of iron), and ten pounds of powdered, slacked, or "hydrate of lime; mix well together, then take fifteen gallons of "the clear liquor, add two quarts of liquid muriate of tin at 120° "of Twaddles' hydrometer, filter through thick flannel to a thick "pulp, then take three quarts of this pulp, and one quart of gum "water (of about three and a half pounds of gum senegal per "gallon of water or any other thickening matter commonly used),

" and two pounds of calcined farina, and add four ounces of " muriate of tin crystals." To make a green, "I dissolve five " pounds of white sugar of lead in one pint of acetic acid, in an " earthen vessel placed in a hot water bath, then add, when cool, " four quarts of the above mentioned blue pulp, beat well up with " two and a half pounds of calcined farina, and add four ounces " of muriate of tin in crystals." A variety of fancy shades can be produced by mixing the yellow standard alone, or in combination with the blue pulp, with red standard, iron liquor (acetate of iron), catechu, or any two or more of them in various proportions; any or all of the above prepared colors or mordants may be printed or applied as usual and aged in the ordinary manner. "Secondly, " the raising or fixing of these mordants, passing the printed " cloth through the bath composed of cowdung, or any liquid or " soluble substance containing a sufficient quantity of ammonia " in lieu of cowdung, carbonate or bi-carbonate of soda, or " any other carbonated or bi-carbonated alkali," or, " thirdly, " through a mixture of bichromate of potash, and carbonate " of soda, or any other carbonated alkali;" and, "fourthly, " through madder or any other known dies;" as the Patentee does not confine himself to the exact proportions given in the specification it may be stated generally, that the pieces, on being aged, are passed through the dung cistern in which the substances above mentioned are mixed with the dung either together or separately; and through a solution composed of "four ounces of " bichromate or potash, and four ounces of common carbonate of " soda (or any other carbonated or bi-carbonated alkali) dissolved " in four quarts of water." The pieces being so prepared, and duly cleansed by washing, are dyed with any dye or dyewood, but the preference is given to madder. After dyeing the pieces are cleansed by bran, soap, or chloride of soda, as the case may be. Pinks and reds are passed through weak sulphuric or nitric acid between the soapings, and if required they are again passed through the bichromate of potash and carbonate of soda solution. " In order to brighten the yellow and blue mordants and their " several combinations, pass the goods through a solution com- " posed of about two-thirds carbonate of soda, and one-third of " bicarbonate of soda standing at about 16° Twaddle, or any other " carbonated or bicarbonated alkali for a few minutes."

[Printed, 4*d*. See Mechanics' Magazine, vol. 34, p. 459; Inventors' Advocate, vol. 4, p. 358.]

A.D. 1840, December 17.—N° 8743.

MABLEY, WILLIAM TUDOR.—" Producing surfaces to be used " for printing, embossing, or impressing," by " certain modifica- " tions or applications of the art known as electography or electro- " metallurgy ;" but the " means by which this is accomplished " forms no part of my invention."

Firstly, instead of engraving the whole design, a fourth or other part of it is engraved, from which a cast is taken by the electrotype process ; these parts are then placed together and form one whole plate, from which a reverse may be taken by the same means. " These plates or blocks may be coiled round a drum or " mandrill, in order to print from a cylindrical surface."

Secondly, the plates or parts of plates produced by the electrotype process are joined together in the following manner :— " Grooves being made on the edges of the plates, they are " brought together and held in that position by means of clamps " or otherwise ; all parts are then varnished or otherwise insulated, " except the grooves, which are to be washed with dilute nitric " acid, and the whole then placed in the metallic solution, and in " connection with the battery, when metal will be deposited which " will firmly unite the parts together."

" Thirdly, obtaining an extended surface to an engraved plate, " by taking a mould of such engraved plate, and soldering or " otherwise attaching thereto, as described above, a plain metallic " or other surface, and then submitting the whole to the action of " the battery in the metallic solution, when a plate will be obtained " in one mass, containing an additional surface, whereon another " portion of a whole design or other entire design may be en- " graved."

Fourth, " producing surfaces suitable for printing or embossing " without the aid of ordinary original engraving," by covering a flat metal surface with a coat of wax or other suitable material, then cutting the design through to the metal ; the surface is then brushed over with a conducting substance, and placed in the metallic solution in connection with the battery. If it is desired to produce a printing or embossing cylinder after this plan, then a hollow cylinder must be used instead of a flat plate ; a hollow cylinder in three segments is preferred. The segments are then joined as above, and the whole placed in the solution. Or, a lithographic stone may be etched in the usual manner. " I then coa

" the whole with varnish;" and having applied a "conducting " substance thereto, place it in the solution in connection with the " battery," or, a piece of sheet lead may be punched out with the pattern, then soldered on a plate and submitted to the action of the battery. The sheet lead may be placed in a hollow cylinder, whereby a printing or embossing roller may be obtained.

Fifthly, producing metallic surfaces suitable for printing in two or more colours, by the following method :—" Having engraved or " otherwise obtained the design with the pattern sunk therein, I " obtain two moulds of the whole design, in which it will, of " course, be in relief. I then, with a scraper or other tool, remove " those portions of the design on one plate which would print the " red colour, for instance, and on the other remove those portions " of the design which would print the green colour." From these may be taken electrotype copies.

The sixth head is, " that of forming dies to be used in em- " bossing or impressing buttons, such as are formed of hoof, horn, " &c."

The seventh head is, "The mode of mounting seals, book- " binders' tools, and other such instruments."

" My last improvement, videlicit, that of producing seals for " impressing, consists in setting up or putting together moulds or " portions of such seals."

[Printed, 1*s*. 3*d*. See London Journal (*Newton's*), vol. 19 (*conjoined series*), p. 94; Mechanics' Magazine, vol. 34, p. 470; and Inventors' Advocate, vol. 4. p. 406.]

A.D. 1840, December 31.—Nº 8770.

SCOTT, HENRY.—" Improvements in the manufacture of ink or " writing fluids." " Take forty-eight pounds of logwood chips, " and let them be saturated two days in soft water; then put the " same into a close covered iron cauldron, and add eighty gallons " of soft water; let these be boiled one hour and a half; when " take out the wood and leave the fluid, to which add forty-eight " pounds of the best picked 'Alleppo galls' in coarse powder; " boil these half an hour longer, when draw off the fire, and let it remain in the cauldron twenty-four hours infusing, during " which it is to be very frequently agitated. When the properties " of the galls is sufficiently extracted, draw off the clear fluid " into a vat, and add forty pounds of pulverized 'sulphate of " 'iron.' Let these ingredients remain a week (stirring daily),

" after which time add four gallons of vinegar. Next take seven " pounds and a half of the best picked 'gum arabic,' and dissolve it in sufficient water to form a good mucilage, which must " be well strained, and then added to the fluid by degrees. Let " these stand a few days longer, when pour into the same twenty " ounces of the 'concentrated nitrate of iron.' Let the whole " stand by again until it has arrived to its height of blackness; " next pour the clear fluid off from the sediment, and add to it the " following substances, each prepared and ground separately :—

" First take half a pound of 'Spanish indigo,' which grind " very fine between a muller and stone, adding by degrees portions " of the ink, until it is made into an easily soluble paste. Next " take well washed and purified 'prussian blue,' five pounds, " which prepare as the former, except grinding it in distilled water " in lieu of the fluid, until it is formed into a soluble paste; also " next take four ounces of gas black, which results from the smoke " of gas burners received on surfaces of glass, as is well known, " which grind in one ounce of the nitrate of iron. When each " is sufficiently fine, let them remain a few hours unmixed, when " the whole may be incorporated with the fluids, and kept agitated " daily for a week; the clear may then be poured off for use. " The above will make eighty gallons."

[Printed, 3*d*. See Repertory of Arts, vol. 16 (*new series*), p. 109; London Journal (*Newton's*), vol. 21 (*conjoined series*), p. 26; Mechanics' Magazine, vol. 35, p. 60; Inventors' Advocate, vol. 5, p. 20.]

A.D. 1841, January 23.—N° 8809.

BAGGS, ISHAM.—" Improvements in printing." They consist, first, " in applying the chemical powers of electricity to the purpose " of printing in one or more colours; and, secondly, in a mode of " employing tests in printing." The electricity used may be derived from any source, including that of the " electrical eel." If it " was required to produce a coloured representation of a yellow " flower with green leaves and brown stalk, the leaves may be " made of copper, the flowers of iron, and the stalks of silver. " These are to be soldered to a copper plate, and brought to a true " plane;" or the patterns may be formed " by weaving the required design of wires of different metals," which, when woven, are to be fixed to a suitable block. The blocks so made are placed on the substance to be printed, moistened with a solution of carbonate of soda, and when the current from the battery has been completed by connecting the negative wire to the substance to be printed, and the positive wire to the metal of the block, an immediate deposition takes place "of the carbonates of the metals" so employed. Other solutions may be substituted for carbonate of soda, and other metals for those named. "Or a design may be "formed upon a glass plate by cementing upon its surface a num-"ber of small pieces of very fine platinum wire in consecutive "order, so as to form a series. It is then to be laid on a sheet "of paper, moistened with any appropriate solution, say, iodide of "potassium and starch, and submitted to the action of a spark or "current." A further effect may be produced by enclosing dye liquors in, say, a copper tube, and passing the current through, when the periphery of the circle will be painted green and the centre will be dyed pink, if cochineal liquor is employed.

Secondly, in employing tests in printing, "I make a mixture of "different tests, with a due regard to the play of affinities." For example, if the proto-salts of iron and lead be used, then add a mixture of sesquiferrocyanuret of potassium and iodide of potassium, "there will immediately result the required blue and "yellow."

[Printed, 4*d*. See Repertory of Arts, vol. 16 (*new series*), p. 180; Mechanics' Magazine, vol. 35, p. 143; and Inventors' Advocate, vol. 5, p. 71.]

A.D. 1841, January 26.—N° 8811.

HENSHALL, Edward.—"Certain improvements in making, "manufacturing, or producing carpets and hearth rugs." This invention consists, first, in a novel arrangement of the threads or yarns which are to constitute the warp threads with a view to weaving. Secondly, in a mode of printing yarns for forming warps. The yarns are drawn off the bobbins through friction rollers, and placed regularly on an ordinary blocking table, in bands of ten or twenty yarns each, and there printed with the block in spots or squares. The yarns are passed through a reed and confined in a nipper or clasp, and drawn tightly across the printing table. When the yarns are so printed they are to be dried, separated by upright wires, and wound into hanks, then steamed, washed, and dried, or otherwise treated, as in woollen printing. These hanks are then to be wound on bobbins, and from the bobbins beamed ready for the loom, care being taken to number the hanks and to arrange the yarns so that they will produce the desired pattern when woven.

Thirdly, "instead of beaming the warp threads at once for the " loom, I pass them over guide or friction rollers, through the " healds and reed or slea, and at every inch or more of space throw " in a weft or cross thread," "and at the same time beaming it on " the beam." "This combined warp or gauze or loose fabric is to " be printed (in the usual manner), and finished ready for weaving, " as before described."

[Printed, 1s. 3d. See London Journal (*Newton's*), vol. 21 (*conjoined series*), p. 176; Mechanics' Magazine, vol. 34, p. 461; Inventors' Advocate, vol. 4, p. 359.]

A.D. 1841, June 5.—N° 8974.

OLLIVANT, George Bent, and HOWARD, Adam.—"Certain " improvements in cylindrical printing machinery for printing " calicoes and other fabrics, and in the apparatus connected there- " with, which is also applicable to other useful purposes." The first improvement consists "in the perpendicular arrangement of " the printing cylinders with separate bowls."

"Second, the driving of the printing cylinders by means of " worms and worm wheels," fixed on the ends of the maundrils.

"Third, the driving and disengaging the printing cylinders " separately from both sides of the machine, by which we are " enabled to print two pieces at the same time." This is effected by gearing at each side, whereby one or more of the rollers can be driven independently of the others.

"Fourth, the various movements for putting on the nip or pinch " of the printing cylinders and relieving the same, either simul- " taneously or separately, together with the combination of the " lever and screw nip," which is effected by "a large fly wheel, " which, when moved, turns the worm shaft and gives motion to " the worm wheel, which is chased out to receive the screw," and when the fly wheel revolves it raises or depresses certain wedges, whereby the nip is taken off or put on. These wedges, combined with eight levers and four screws, enable the operator to work the machine (which is represented as a four colour machine) all or part lever nips, or all or part screw nips.

"Fifth, the pitch bar and the two movements for fitting in the " pattern by the horizontal and circular movement of the printing " cylinders on the mandrils." The "pitch bar" is attached to a shaft, "and is brought down vertically over the rollers immediately

" they have done printing, being in the machine for the first time, " and pitched to a centre point on the bar." The improved " box " wheel" consists of a " bush which is bored to fit on the mandril " end, which bush has a spiral placed on its periphery, and is " made to fit into the eye of the mandril wheel by means of the " wheel being chased out. This wheel having a loose pap screwed " on one end, with a hollow screw working through it, enables us, " by setting this screw against the mandril end or from it, to get a " rotary motion in the mandril either way."

"Sixth, the differential driving gearing, as applied to printing " and other machinery requiring a variable driving speed.' This consists of four couples of speed wheels, any couple being worked at pleasure by a tappet rod, which works four catches through the recesses of the shaft into the wheels.

" And, lastly, we claim the printing and drying of two pieces of " cloth in the same plane, or one above the other," by means of working one or more of the rollers independently of the others, and supplying both with separate pieces to print, separate blankets, and separate drying apparatus.

[Printed, 1*s*. 5*d*. See Mechanics' Magazine, vol. 35, p. 401; Inventors' Advocate, vol. 5, p. 356.]

A D. 1841, June 12.—N° 8987.

PALMER, Edward.—"Improvements in producing printing " surfaces, and printing china, pottery ware, music, maps, and " portraits."

"This invention consists, first, of a mode of obtaining printing " surfaces by drawing and painting on metallic or conducting sur- " faces, or on surfaces made conducting afterwards, in such a " manner as to enable me by the use of the known process of elec- " trotype, to obtain metallic plates with sunken surfaces, from " which prints may be taken." The painting is performed on the metal plate, the surface of which has been whitened, by the deposition of silver or other metal, with the following composition:— " One part by weight of white wax, two of lard, and one of lamp " black, melted together, and stirred till nearly cold. To render " this composition fit for use it is to be ground with a small " quantity of olive oil. The consistence required depends, in " some measure, on the nature of the subject." "This composi-

" tion never dries, and consequently can be removed from the " plate, or its position altered at pleasure." " When it is desired " to produce a washy texture, I prefer a composition as follows: — " Mix equal parts of wax and ivory black, ground with olive oil, " and make thin with spirits of turpentine." The painting being finished by the artist, is to be slightly touched in the dark parts with plumbago or other suitable material for making the surface conducting, and submitted to the electrotype process, which is well understood, by which means a metal plate is produced capable of transferring to paper or other materials a fac simile of the original painting.

" Secondly, in a mode of drawing or painting on copper or other " metallic or conducting surface, or made conducting afterwards, " so as to enable me by the process of electrotype, to produce or " obtain copper or other metallic plates with raised surfaces, from " which prints may be taken as from engraved wood blocks or " stereotype plates." " The required subject is painted on a dark- " ened or black copper or other plate, with a white coloured " material, so as to produce the effect intended, by means of such " brushes or tools as will leave the composition in lines or dots, " capable of making an impression in the electrotint plate suffi- " cient, so as not to come in contact with the printing roller, while " those parts of the darkened copper which are left visible, either " in lines or dots, will, when electrotyped, receive the ink from the " roller, and when printed from, transfer an impression to paper or " other material." The composition used is made of " two parts, " by weight, of sulphate of lead, two of lard, and one of wax, " melted together, and stirred till nearly cold." " Broad portions " of light are obtained by heaping on the composition." " Flat " tints by striking a fitch or other brush perpendicularly;" " and " a dragged texture is produced by using the composition thinned " a little with spirits of turpentine, with a soft brush, held in a " slanting direction, and passed quickly over the surface." The light parts may be lowered by cutting out paper of the desired shapes, and pasting it on the plates in sufficient number of thickness to produce the desired effect. " Plumbago or other suitable " material is used to make the surface conducting when the surface " is covered with composition."

[Printed, 4*d*. See Repertory of Arts, vol. 17 (*new series*), p. 101; London Journal (*Newton's*), vol. 20 (*conjoined series*), p. 172; Mechanics' Magazine, vol. 36, p. 28.]

A.D. 1841, October 26.—N° 9127.

ROBERTS, Martyn John, and BROWN, William.—"Improvements in the process of dying various matters, whether " the raw material of wool, silk, flax, hemp, cotton, or other " similar fibrous substances, or the same substance in any stage of " manufacture, and in the preparation of pigments or painters' " colours." The Patentee claims, first, in "the preparation of " pigments or painters' colours, the abstraction of a great portion " of the air from the component parts of pigments or painters' " colours, and also the compressing of their component parts," " either separately, or two or more of them together, after the air " has been in a great measure abstracted from them with any " amount of pressure whatever;" or they may be compressed " without having first abstracted the air therefrom." "As regards " the dying of wool, silk, flax, hemp, cotton, or other similar " fibrous substances," "we claim the application of a greater " pressure than that of the atmosphere to fibrous bodies while " immersed in a solution of colouring matter, or of mordaunts, " after the air has been in a great measure abstracted from them;" also while under the action "either of a partial vacuum or of " pressure, in such a manner that the said fibrous tissues or bodies " may be evenly and regularly impregnated with either or both of " the said solutions." Such bodies so impregnated may have their "external surfaces further impregnated with the same or a " different kind of colouring matter, by processes at present " practised, or any other process whatever." The substances to be operated upon may be placed in a strong closed vessel, to which is attached a pump which will produce a partial vacuum, or a pressure of a hundred pounds, as required. There is a proper opening to admit the liquors when desired.

[Printed, 4*d*.]

A.D. 1841, December 14.—N° 9178.

NEWTON, William Edward.—(A communication.)—"Certain " improvements in printing or delineating patterns on printed " cloths for floor cloths, covers, and other uses." "The invention consists in depositing the pattern or design which is to " form the subject of the surface of the finished cloth upon sheets " of paper, which may be done by means of painting or printing

" on such sheets of paper with thick colours laid on by hand, " or by blocks stamped or impressed in the ordinary way, employed for painting and printing oil cloths and such fabrics. " By these means the prominent parts of the pattern or design " will be thickly incrusted upon the surface of the paper; and " when this has become dry, thick adhesive compositions of colour, " to form the basis or ground of the pattern, are to be laid thereon, " and upon this ground compositions of hair, wool, cotton, or " other fibrous materials, with adhesive matters, are to be spread " and pressed down by rollers or otherwise, which fibrous materials " are to constitute the body of the fabric. When this body of " the fabric has become hard and dry, its surface may be painted " or otherwise coated, to form the back of the floor cloth or other " covering, which operation completes the manufacture. The " fabric is then laid down flat upon a floor, the paper surface " being upwards, and after having been well soaked with water, " the paper is to be completely drawn off or removed from the " fabric by rubbing or otherwise, and when perfectly cleaned, the " subject pattern or design first laid upon the paper will appear " as the face of the floor cloth or other cover, imbedded in the " fabric, and level with its ground colours, thereby producing an " article more level on its surface, and with a pattern more " durable than has heretofore been obtained in such manufacture."

[Printed, 4*d*. See London Journal (*Newton's*), vol. 23, (*conjoined series*), p. 267.]

A.D. 1841, December 21.—Nº 9194.

WATSON, HENRY HOUGH.—" Certain improvements in dressing, " stiffening, and finishing cotton and other fibrous substances, " and textile and other fabrics, part or parts of which improvements are applicable to the manufacture of paper, and also to " some of the processes or operations connected with printing " calicoes and other goods. These improvements consist, firstly, " in the removal by singeing, of the fine protruding fibres and " loose filamentous matter from the articles and goods mentioned," and is effected by "air made so hot as to be capable of burning " or charing the fine fibres or organic matter" not confining " myself to any particular mode of causing the air to be heated, " nor to any particular manner of applying the air when heated."

Secondly, the application of a solution of sulphate of magnesia in the manufacture of paper to give it body and stiffness; " and " the application of sulphate of magnesia, sulphate of soda, or " sulphate of potash, or a mixture of two or more of the salts " to yarn, thread, and cloth, which will give them " increased body, " marketable appearance, and seemingly improved quality," " without confining myself to any precise manner of effecting the " application." " Also the application of the compound formed " by mixing a combination of resin and alkali with sulphate of " magnesia, and also the application of the compound formed by " mixing a combination of tallow or of grease and alkali with " sulphate of magnesia, both in the stiffening and finishing of " goods, and in paper making, whether the said compound be " mixed with any other ingredient or ingredients or not, and " without confining myself to any precise proportions or qualities " of the several ingredients or to any particular manner of " applying the compounds." " I also claim the causing cloth or " other goods, after the same has had in anyway or in any degree " applied thereto a solution or mixture of any kind containing " sulphate of magnesia, alum, or other salt whose base is a " metallic oxide, to be acted upon by an atmosphere of or con- " taining ammoniacal gas, as that the metallic oxide forming the " base of the salt contained therein shall become deposited in or " upon the cloth, calico, or other goods." " I also claim the " application to cloth or other goods, in the dressing, stiffening, " and finishing thereof, for whatever purpose the said cloth or " goods may be intended, combinations of ammonia with lard, " tallow, oil or other grease, wax, spermacetti, or stearine, and " of ammonia with all or any two or more of the several ingre- " dients, however the said combination or combinations may be " formed, not confining myself to any particular proportions or " particular manner of application," and, lastly, " the drying of " cloth and goods by the application of heated air produced by " or resulting from the action of atmospheric air, upon charcoal, " coke, &c. in a state of ignition, the air resulting from the com- " bustion is allowed to pass into the room or chamber in which " the goods are hung for drying, and has the effect of giving what " is called a ' hard finish.' "

[Printed, 4*d*. See London Journal (*Newton's*), vol. 21 (*conjoined series*), p. 361; Mechanics' Magazine, vol. 37, p. 44.]

A.D. 1841, December 21.—Nº 9196.

NEWTON, William.—(A communication.)—" Improvements " in cleansing wool and facilitating the operation of dyeing, " and also in washing and bleaching cotton yarns and fabrics." The apparatus employed " consists of a close vessel suited " for containing the substances to be washed, bleached, or dyed, " contiguous to which is to be placed a vessel containing " the alkaline liquor and water for washing or dyeing liquor." The vessel may be made of suitable material, and " strong " enough to bear a pressure of from one to two atmospheres," with a false bottom perforated with holes for the passage of the liquor. " A tube is placed vertically in the middle of the " vessel resting upon the false bottom; it is open at bottom " and closed at top, and is pierced with holes all round for a " considerable distance, in order to allow the liquid to escape " in radial directions into the goods packed in the vessel round " it." A pipe supplies " the liquid to the vessel by a force pump, " which raises it from the reservoir, and forces it into the lower " part of the vessel." The liquor in the reservoir (which may be open) may be heated with steam. Suitable pipes and taps are provided for the ingress and egress of the liquor used. The goods are packed in firmly, by mechanical means when necessary, and the liquor is pumped in by means of a force pump, entering by the bottom and proceeding through the holes in the false bottom and upright tube, through the goods and escaping by a cock at the top, and returning to the reservoir below. This apparatus may be applied in bleaching, dyeing, washing, scouring, &c., suitable liquors being used as the case may be.

[Printed, 6d. See London Journal (*Newton's*), vol. 22 (*conjoined series*), p. 201.]

A.D. 1842, January 15.—Nº 9227.

PALMER, Edward.—" Improvements in producing printing " and embossing surfaces." " This invention relates, first, to a " mode of obtaining surfaces for relief printing by means of the " electrotype process, or by casting, by causing the subject to be " etched or engraved through a white or light coloured compo- " sition placed on a blackened or darkened surface." " I take a " smooth metal plate, by preference of German silver or brass, and

" having blackened or darkened the surface, I then apply a com-
" position having a white or light coloured surface which can be
" readily cut through by a graver or other proper tool. I prefer
" to blacken the plate by immersing it in a weak solution of
" chloride of platinum, or hydrosulphuret of ammonia; and for
" the white or light surface I prefer to use the following com-
" position: one ounce of the clear part of Burgundy pitch, one
" ounce of rosin, two ounces of white wax, one ounce of sperma-
" ceti; these being carefully melted and mixed, a thin layer is to
" be laid on to the blackened or darkened plate, according to the
" depth it is desired to have the printing surface in relief." Sulphate of lead in fine powder is then rubbed into this surface while warm till it is of the desired whiteness. The plate is then etched in by cutting through to the black ground. Those parts of the subject where a greater depth is required, are built up by brushing on white wax dissolved in turpentine. " The surfaces
" thus prepared are then to be electrotyped, as is well under-
" stood;" "or I take a cast in plaster of Paris of the etched or
" engraved subject, and then by rubbing the surface of the plaster
" cast with a lather of soap, and taking a reverse cast in plaster,
" I obtain a mould from which a printing surface may be ob-
" tained by stereotype or casting, as is well understood."

" Secondly, relates to a mode of obtaining metallic printing
" surfaces, with the design thereon, to be printed from in the
" ordinary manner of line or sunk engraved surfaces." " For
" this purpose I obtain electrotype surfaces according to one of
" two modes," as under. Pour a very thin coating of a composition " of equal parts of sulphate of lead and white wax melted
" and well rubbed together," over a metal plate of the size required. " When cold make a border round it, and pour on a
" sufficient quantity of white wax into which enough of black
" lead or other colouring matter has been stirred to render it of a
" very dark color." " As every line made upon this kind of
" tablet pierces through the thin white surface into the dark or
" black ground, every mark will be seen as though drawn with
" black." Having completed the drawing " upon the wax, it is to
" have a reverse taken from it in metal by the electrotype process,
" from which reverse as many printing copies as required can be
" taken;" " or I take a polished plate of metal or glass and having
" slightly oiled it, make a border round it, and take a cast from
" it in plaster of Paris. I trace or scetch in the outline on the

" smooth even surface with a soft black lead pencil, and then with " an engraver's etching needle, I proceed to make the design. " While working I keep a small quantity of finely scraped or " powdered charcoal or other dark powder dusted into the " lines." "From this a cast in wax may be taken, which cast, by means of the electrotype, will furnish a metallic plate which will be " a printing surface; or a metallic cast may be obtained by electro- " type, from which any number of printing metal surfaces may be " obtained by the electrotype process.

"Thirdly, relates to a mode of obtaining blocks for surface " printing from ordinary engraved copper or other plates." "The " (engraved) plate being free from all dirt or grease, I use a letter- " press printers' composition roller," and carefully spread a thin " but close and firm coating of printers' ink with Brunswick " black over the whole subject, taking special care that none of " the light work is filled up; over this I sift some very fine oxide " of iron and litharge, mixed together in about equal proportions." The plate should then be heated to dry the ground, and when sufficiently cold the powder is brushed off. " Then apply a second " ground in the same manner, and so on with several coats, until " the ground is of sufficient thickness above the surface of the " plate to form a proper and sufficient depth in the reverse for " being printed from as a raised surface." The lights are now built up as before directed, and a reverse taken by the electrotype process.

" Fourthly, consists in engraving or sinking the subject to be " embossed into a smooth surface of plaster of Paris. The artist " having sunk or engraved the subject on such surface, a cast is " to be obtained in wax if it is intended to be electrotyped; and " the wax impression is to be rendered conductive of electricity " and electrotyped; or if the embossing block is to be made by " stereotype or casting, then the cast is to be made of plaster of " Paris, and cast or stereotyped, as is well understood."

[Printed, 4*d*. See also No. 8987. See London Journal (*Newton's*), vol. 23 (*conjoined series*), p. 279.]

A.D. 1842, February 8.—N° 9248.

HANCOCK, Charles.—This invention consists " in printing " cotton, silk, woollen, and other stuffs with oil or oil colours," " and also in printing them partly with oil or oil colors and partly " with water colors."

The oil (preferring linseed oil) is prepared by boiling it with Turkey umber in the proportion of one pound to the gallon, or "I use " boiled oil alone," to which may be added "a little white vitriol, " litharge, sugar of lead, or other drier, or a little of any suitable " resin." "Before the product of the boiling has become quite " cold it may be thinned down with highly rectified spirit of turpentine or any other sufficient solvent." This medium is combined with any of the pigments suitable for printing "according " to the mode usually adopted in color manufactories or laboratories." The colour so prepared, or the oil so prepared by itself, may be printed by block or cylinder; or the pattern may be printed first in a gum or resist colour soluble in water and covered with the oil colour, so that by subsequent washing the gum will be washed away and show the pattern white.

[Printed, 3*d*. See Repertory of Arts, vol. 1 (*enlarged series*), p. 227; London Journal (*Newton's*), vol. 22 (*conjoined series*), p. 205; Mechanics' Magazine, vol. 37, p. 413; Record of Patent Inventions, vol. 1, p. 11.]

A.D. 1842, May 26.—N° 9367.

KAGENBUSCH, PETER.—" An improvement in the dyeing of " wool, woollen cloths, cotton, silks, and other fabrics and materials." This invention consists in "the use and application of " the residual mother liquors of the alum works, and of the product " obtained therefrom." The Patentee prefers "the residual mother " liquor of that manufacture of alum in which muriate of potassa " has been employed for the alkaline base; also "the liquors of " the alum from the natural rock or schist to the mother liquors " of the rough alum from what is generally called the artificial " alum process." "To this residual mother liquor, heated to " boiling, I add common salt or brine in sufficient quantity to neutrallize the sulphuric acid of the said mother liquor." "This " salted liquor is ready for use as a mordant for dyeing and fixing " all colours except reds." This liquor may be boiled down, if required, to such a consistency that, on being "cooled, it readily " solidifies as a salt."

[Printed, 3*d*. See London Journal (*Newton's*), vol. 22 (*conjoined series*), p. 300; Record of Patent Inventions, vol. 1, p. 281.]

A.D. 1842, August 18.—N° 9448.

NEWBERY, GEORGE JOHN.—" Improvements in producing " damask and other surfaces on leather and other fibrous sub-

"stances." A damask surface may be produced on leather, &c., by first taking a cast in gelatine from the woven damask pattern and then filling it in with varnish, paint, or other similar substance of the desired colour. Before the paint has dried a layer of leather or other fabric is pressed down upon it and caused to adhere to it. When perfectly dry the gelatine is dissolved off, leaving the figured surface of paint attached to the leather. Instead of the mould being made of gelatine it may be a metal mould thinly coated with wax and gelatine. The Patentee ornaments fabrics by applying to them surfaces of gelatine, which may be coloured and ornamented with suitable devices; also stiffens gauzes, laces, &c., in a similar manner. Ornaments in strong relief on shapes of leather, as cups, &c., may be formed by the aid of hydraulic power or by the effect of a vacuum. Other surfaces may be produced on leather or fabrics, namely, by stretching them tightly over an ordinary brassed printing block and carefully rubbing with glass paper the projecting parts into holes; or by polishing the projecting parts with a burnisher; or by gilding the surface of the block, then coating it with isinglass, and applying the fabric to it by means of a hot burnisher; by coating black crape with a siccative oil or varnish; by transferring the ink from an engraved design or plate to the surface of cotton fabric by means of a coating of isinglass; by using the natural grain of woods, metals, and natural substances, as marbles and crystals, to print from as from a block; by casting paper pulp into moulds, so that effects may be produced of light and shadow; by making on a flat surface models in wax of paintings, then coating them with gelatine and taking the cast off, which may be placed in the hands of an artist to fill in with colours resembling the original picture; "by sprinkling liquid colours mixed with varnish "and soap thinned with spirits according to the tints and forms "in the marbles I desire to imitate on the surface of a sheet of "water," and carefully applying thereto the paper or other substance intended to receive the impression. Patterns may be formed by immersing outlines of tin.

[Printed, 5*d*. See London Journal (*Newton's*), vol. 23 (*conjoined series*), p. 95.]

A.D. 1842, November 10.—N° 9517.

BARNES, John, and MERCER, John.—"Improvements in the "manufacture of articles used in printing and dying cotton, silk,

" woollen, and other fabrics," consisting " in the manufacture of " a new material which we call ' assistant mordant liquor,' which, " when combined in certain proportions with the ordinary mor- " dants, renders them more effective and useful." " To one hun- " dred pounds avoirdupois of potato starch (or other starch, flour " of wheat, oats, barley, rye, maize, Indian corn, &c.) we add " thirty-seven and a half gallons of water, twelve and a half gallons " of nitric acid of commerce (specific gravity 1300) or the acid " and salts of chromic acid, or the oxydes of manganese, along " with a mineral acid), and four ounces avoirdupois of oxyde of " manganese. The chemical action which takes place among these " ingredients is allowed to proceed until the nitric acid is destroyed. " To the residuum thus produced we add fifty gallons of pyro- " lignic acid, and the compound is the assistant mordant liquor." This assistant mordant liquor is used in combination or mixture with the ordinary mordants to facilitate the precipitation of their oxides on the fabric.

[Printed, 3*d*. See Repertory of Arts, vol. 2 (*enlarged series*), p. 158; London Journal (*Newton's*), vol. 24 (*conjoined series*), p. 417.]

A.D. 1842, December 29.—N° 9577.

BOURLIER, JOHN STEPHEN.—(A communication.)—" Im- " provements in machinery used in printing calicoes, silks, " paper hangings, and other fabrics." The Patentee claims, " first, the mode of using two crank shafts in place of one, for " moving the carriages which carry the blocks." " The car- " riages which carry the blocks in no way differ from those " described in a specification of a patent granted to Mr. " Lockett." The first crank makes two turns whilst the second crank is making one. A connecting rod communicates motion from the second crank to the arm of the balance or cross piece moving in bearings upon the carriage. There is also a connecting rod by which the movement is transmitted from the first crank to the other arm of the cross piece. The carriage and the block which is fixed to it, approach and recede alternately from the tables. [See Specification.]

" Secondly, the mode of preventing at intervals the application " of the blocks upon the color sieve and the fabric, particularly " applicable to the printing of handkerchiefs and other fabrics " which require the application of several blocks without interrup-

" tion." This is effected by varying the length of the connecting rod between the second crank and the cross piece, combined with the intermittent movement of the shaft. [See Specification and Drawings.]

"Thirdly, the arrangement of machinery, by which the printing " by six blocks may be obtained simultaneously." This machine differs from that of Mr. Lockett "only in the mode of moving " the carriages which carry the plates or blocks." [See Specification and Drawings.]

"Fourthly, the mode of regulating the stretching of the fabric " in printing machines." There is a break applied to the roll of cloth about to be printed. "This break presses constantly on the " surface of the roller which is covered with the cloth to be " printed, and opposes a resistance independent of the changeable " size of this roller." The pressure may be increased by adding weight to the lever at each end. A similar apparatus is applied to the blanket roller. The fabric then passes over a small roller, " and descends between holding jaws, which press the fabric the " whole of its width."

"And, lastly, the application to block and surface printing " machines of a metal case heated by steam or other convenient " means, over which the fabric printed passes to be dried before " it leaves the machine."

[Printed, 2*s*. 6*d*. See Mechanics' Magazine, vol. 39, p. 45.]

A.D. 1843, January 26.—N° 9613.

ROBERTS, Martyn, John.—"Improvements in dyeing wool " and woollen fabrics." "The object of these improvements is to " dye woollen fabrics, and particularly woollen cloth, in the piece, " (that is), after it is woven or manufactured as thoroughly as if " the wool of which it is made had been dyed before its manufacture into cloth." "When cloth or other woollen fabrics are to " be dyed by the colouring matter of woods, and boiled, I pass " them while in the dyeing liquor through pressing rollers, or " through rollers on the top of the vat or vessel containing the " cloth and dyeing liquor (and this I consider the preferable " mode), or I sometimes subject the cloth to the process of stocking" "or beating while in the dyeing liquor, or I allow it to " soak in the dyeing liquor, until by either of these processes it is " perfectly saturated by the colouring matter; but in all or each

" of these cases I take care that the liquor in which the cloth is " immersed is not of a higher temperature than eighty degrees of " Fahrenheit, otherwise the colors are fixed immediately upon the " cloth; and if this is the case, the colouring matter would attach " itself to the surface of the cloth, and thereby form a kind of " filter, preventing the entrance of a proper quantity of colouring " matter to the heart or centre of the cloth, which will consequently be less deeply dyed than its surface." "After the fabrics " have undergone either of these processes of saturation, I proceed " to fix the colouring matter in and upon them; and this I do by " boiling them either in clear water, or in water slightly tinged " with colouring matter, the heat of this boiling process tending " to fix the colouring matter with which the cloth or fabric is " already saturated." Mordants may be applied in the same way.

" When I wish to dye cloth in the piece with indigo," "I employ " an apparatus something similar to a sizing machine, which consists of a frame work sustaining a series of rollers over which " the cloth passes; the whole being immersed in the indigo liquor, " the cloth is passed over the rollers, as if it were a strap to drive " them." The rollers may be separately driven to prevent the cloth being strained; and the cloth may be pressed with squeezing rollers while immersed in the liquor.

[Printed, *5d.*]

A.D. 1843, January 31.—N° 9622.

HANCOCK, Charles.—" An improved means of dyeing or " staining cotton, woollen, silk, and other fabrics, and rendering " them repellent of waters and moisture." The Patentee prepares certain vehicles to be substituted " for the solutions of gum and " starch, and the paste ordinarily employed in dyeing; they are " four in number, and composed as follows:"—

" First, to one gallon of oil (preferring linseed) I add one pound " of raw or burnt Turkey umber, lime, or any other earthy base " and boil them together until the mixture acquires the consistency " of treacle. Second, to three pounds of linseed oil I add one " pound of caoutchouc and two ounces of raw or burnt umber, " and boil them together till the caoutchouc has thoroughly combined with the oil. The caoutchouc which I prefer is what is " called sheet india-rubber, and sometimes stationer's india-rubber.

"Third, I make a solution of caoutchouc in oil of turpentine or "any other suitable solvent, to which I sometimes add acetate of "alumina or other metallic salts and colouring matters; or, fourth, "I dissolve bees-wax in oil of turpentine, or any other suitable "oleaginous solvent. To thin down these vehicles to a state fit "for working I make use of oil of turpentine, adding occasionally, "to make them more drying, some metallic oxide."

The invention consists, first, "in the use of each and every one "of the compositions Nos. 1, 2, 3, and 4, before described (under "certain qualifications) in combination with colouring matters "and mordants for the purposes of dyeing or staining, and of the "composition No. 2 with or without mordants." Second, the application by printing (in the ordinary manner) of the said compositions Nos. 1, 2, 3, and 4, or any modifications thereof, either alone or in combination with colouring matters, to the rendering of cotton, woollen, silk, and other "fabrics repellent of waters and "moisture, and No. 2, whether applied by printing or otherwise." "Third, the application of the compositions Nos. 1 and 2, either "alone or in combination with colouring matters, or any similar "composition containing oil as its principal element, to the rendering of india-rubber fabrics additionally repellent of waters "and moisture, whether applied by printing or in any other "way."

[Printed, 3*d*.]

A.D. 1843, May 16.—N° 9728.

BURCH, JOSEPH.—Improvements in machinery for printing on cotton, silk, woollen, paper, oilcloth, and other fabrics and materials, and certain apparatus to be used in preparing the moulds and casting surfaces for printing, and for certain modes of preparing surfaces previous to the design being delineated upon them.

This invention consists, "first, in the general combination of "mechanical contrivances (for printing by block) in connection "with a moveable or traversing frame." The principle of this part of the invention is based upon the original patent N° 7937.

"Secondly, the mode of constructing double block backs." Each block has a moveable back, called a "block back," which is attached to it by set screws, for the purpose of adjusting the fitting of the pattern.

"Thirdly, the mode of giving vertical pressure to the block." This is effected by cam rollers fixed near the centre of the presses, combined with vertical guides.

"Fourthly, the mode of furnishing a series of blocks from rollers, "and also the particular mode of constructing the colour boxes." By causing the colour rollers to revolve and have a simultaneous and equal movement with the traversing motion of the surface of the block. The colour boxes have in each a revolving colour roller, and to each side of this roller is applied a doctor to regulate the supply of colour, and a brush to tear it with.

"Fifthly, the mode of using one drum for the purpose of entering the fabric or cloth upon the printing table and receiving it "again after it is printed, and for placing the drum directly under "the printing table."

"Sixthly, the mode of making moulds for casting surfaces by a "machine with heated punches." The mould is made by depressing heated steel punches of the shape required into wood cut cross grained, or other suitable material.

"Seventhly, the mode of casting surfaces in a frame." A series of thin pieces of wood are screwed together and fixed in a frame, each of which is grooved on one side, forming a channel for the metal. These are firmly fixed on the mould. On pouring the metal it instantly discharges itself through these channels over the surface of the mould.

"And, lastly, the mode of preparing surfaces to receive designs." The face of the block is lined all over with parallel cuts, the block is then turned half round, or as far as the angle required, and is again cut, thus forming checks or diamonds on the surface upon which the pattern is drawn. The cutting of a pattern on such a surface is more correct and much more cheaply effected.

[Printed, 1*s*. 6*d*. See Practical Mechanics' Journal, vol. 3, p. 198.]

A.D. 1843, June 15.—N° 9787.

WRIGHT, LEMUEL WELLMAN.—(Partly a communication.)—"Improvements in machinery or apparatus for bleaching "various fibrous substances." Also "improvements in machinery or apparatus for converting or manufacturing the "same into paper." The apparatus described for bleaching various fibrous substances, such as straw fibre, &c., may consist of a series of vessels placed near together, and at various heights, to allow the pulp, fibrous material, &c., to flow from one to the other, or to be pushed from one to the other when required. The vessels are made steam tight so that steam of suitable pressure may be introduced. By this arrangement of vessels the fibrous material may be "limed," washed, ground to pulp in a mill, subjected to alkali, acid, bleaching liquor, and water in proper succession and in a continuous manner. The Patentee also describes a mode of converting or manufacturing the same into paper.

[Printed, 1*s*. 10*d*.]

A.D. 1843, August 8.—Nº 9860.

STEINER, Frederick.—(A communication.)—"This invention consists in manufacturing a certain coloring matter called garancine from refuse madder, or madder which has been previously used in dying; such madder having prior to the said invention ordinarily been thrown away as spent and of no value; and the said colouring matter, called garancine, having been produced heretofore from fresh or unused madder." "The madder which has been employed in dying, and which is in the state considered as spent or refuse madder, is run from the dye vessels to the filter, and while it is so running, such a proportion of the dilute sulphuric acid is run in and mixed with it as changes the colour of the solution, and the undissolved madder to an orange tint or hue; this acid precipitates the colouring matter which is held in solution, and prevents the undissolved madder from fermenting or otherwise decomposing," when the water has drained from the madder through the filter, the residum is pressed, and then submitted to the usual process for making garancine from fresh madder.

[Printed, 3*d*. See Repertory of Arts, vol. 3 (*enlarged series*), p. 161; London Journal (*Newton's*), vol. 24 (*conjoined series*), p. 423, and vol. 40 (*conjoined series*), p. 71; Mechanics' Magazine, vol. 41, p. 126; Patent Journal, vol. 4, p. 36, and vol. 8, p. 122; Engineers' and Architects' Journal, vol. 7, p. 88; Law Journal (*Exchequer*), vol. 20, p. 410; Exchequer Reports, vol. 6, p. 607; Carrington and Kirkwan's Reports, vol. 2, p. 1022.]

A.D. 1843, October 13.—Nº 9908.

BEARD, Richard.—(A communication.)—"Improvements in printing calicos and other fabrics," consisting in the combination of "printing rollers having raised surfaces with the use of sieve or transmitting rollars, the elasticity of

" which is obtained by the use of glutinous or gelatinous matter, " which when in a jellied state will maintain its form, yet readily " yield to pressure, and return to its form when the pressure " is removed." "The composition which I prefer to employ " consists of two or three pounds of glue with four pounds of " treacle, the glue to be steeped about six hours before mixing " the treacle therewith. The composition is then boiled for " four or five hours." The transmitting rollers cast of this composition, being first covered with oil case and then with felt or sieve cloth having a thin coating of india-rubber on one side, are ready for use.

[Printed, 6*d*. See London Journal (*Newton's*), vol. 24 (*conjoined series*), p. 420.]

A.D. 1843, November 21.—N° 9952.

HANCOCK, Thomas.—" Improvements in the preparation or " manufacture of caoutchouc in combination with other substances, " which preparation or manufacture is suitable for rendering " leather, cloth, and other fabrics waterproof, and to various other " purposes for which caoutchouc is employed."

This specification describes at length the Patentee's mode of preparing india-rubber so as to diminish its clammy adhesiveness, as also its tendency to stiffen and harden by cold and to become softened or decomposed by heat, grease, and oil. This may be effected by the addition of silicate of magnesia alone, or with ground asphalt, and plumbago to the india-rubber. When this mixture is properly compounded and rolled into sheets it may be ornamented by printing on suitable colours incorporated with a thin solution of caoutchouc [see Spec. dated January 23, 1838,] or by embossing. If woollen cloth or other fabric be laid on a sheet made of the above mixture and passed together through rollers, a printed or embossed effect will be obtained on the surface of the sheet.

The Patentee further describes various modes whereby sulphur may be caused to combine with india rubber and thereby very considerably alter its properties. (See Abridgments, Gutta Percha and India-rubber.)

[Printed, 4½*d*. See Repertory of Arts, vol. 5 (*enlarged series*), p. 154; London Journal (*Newton's*), vol. 26 (*conjoined series*), p. 178, and vol. 39 (*conjoined series*), p. 158; Exchequer Reports, vol. 9, p. 388; Law Journal (*Exchequer*), vol. 23, p. 110; Patent Journal, vol. 11, p. 152; Petty Bag.]

A.D. 1844, February 13.—N° 10,052.

OVEREND, JAMES.—" Improvements in printing fabrics with " metallic matters, and in finishing silks and other fabrics." The invention " consists in printing the following composition (although " the exact quantities are not claimed, and may be varied according to the fabric printed), namely, one part of white lead, one " eighth part of manganese, one sixty-fourth part of litharge, one " sixteenth of sugar of lead; these materials are to be then mixed " with a gallon of clarified linseed oil and reduced into a pasty " state, then add one gallon of gold size; the whole is then boiled " for half an hour, adding to it one sixteenth part of yellow wax, " one forty-eighth part of dissolved gum, and one sixteenth part " of sugar candy; it is then to be taken from the fire and passed " through a sieve, and a small quantity of yellow chromate added." " After the fabric has been printed (in the ordinary manner), and " as it is drawn off the roller or block, the metallic powder is " sifted on to the color from a sieve or any convenient method." " When thoroughly dried the fabric is to be well brushed until " the whole of the powder is removed." " The fabric is then subjected to pressure, in order to give the metal a bright and burnished appearance." The fabric so printed is then submitted to the finishing process, which consists in damping and beating the fabric and passing it " over a vessel of about three feet long, in " which is burned charcoal and sulphur mixed with salt, the vapour " of which mixes with the colour as it passes over the rollers; it " also removes the disagreeable smell that it had imbibed from the " oil in the previous processes."

[Printed, 3*d*. See Repertory of Arts, vol. 4 (*enlarged series*), p. 364.]

A.D. 1844, February 14.—N° 10,054.

GALLOWAY, ELIJAH.—" Combinations of materials to be used " as a substitute for canvass and other surfaces employed as " grounds for painting, some of which combinations are applicable " to other purposes."

The combination of materials referred to may consist of "india-" rubber," rendered " plastic " by means of heat and grinding in the usual way, combined with " earthy, woody, or fibrous matter, or " any insoluble substance which is capable of being reduced to " small fragments, not coarser than sand or sawdust." (See

Abridgments, Gutta Percha and India-rubber.) The Patentee proposes to use this composition as a substitute for "floor cloth;" it being rolled out into a thin sheet, one side of the sheet may be coated with cement, and then have a cloth of canvas or other woven fabric pressed thereon till it becomes firmly attached. The other side of the sheet may then be ornamented by printing or otherwise.

[Printed, 3*d*. See London Journal (*Newton's*), vol. 25 (*conjoined series*), p. 235; Engineers' and Architects' Journal, vol. 7, p. 423.]

A.D. 1844, February 24.—No. 10,070.

ALLIOTT, Alexander.—"Improvements in scouring, bleaching, "and dyeing." This invention consists in "the scouring, bleaching, and dyeing of goods, by causing the liquids employed for the "purpose to be driven centrifugally, rapidly, and continuously or "intermittingly through them, and whether these operations are "performed by means of either of the machines herein-before described, or by any modification or modifications thereof, in which "the same general system of proceeding is followed, and whether "also the machine or machines is or are employed for scouring, "bleaching, and dyeing, or any two of these processes, or one only." To effect this the apparatus may consist of a "circular pan curved at "the bottom;" working in this is a cylinder or drum loosely fixed on a vertical shaft, which turns at the bottom on a socket and is steadied at the top by fixings. The cylinder may be divided into three compartments, the outer one of which is for the purpose of containing the goods to be operated upon; the middle one, which may be provided at the bottom with curved plates, is for the purpose of drawing up the dyeing, bleaching, and other liquor, and forcing it through the goods by means of centrifugal force; and the inner division or compartment, which is closed, contains a centrifugal governor.

[Printed, 10*d*. See Mechanics' Magazine, vol. 41, pp. 161 and 179.]

A.D. 1844, March 21.—N° 10,118.

POOLE, Moses.—(A communication.)—"Improvements in "dyeing." These improvements are as follows:—"I dilute "the colouring matters that I intend to use (organic or "mineral) in the essence of turpentine," (or with spirits,

" essences, with oily or fatty matters, or with alcohol, either " alone or mixed with the oily matters)," " and I then immerse " the fabrics into this solution several times, according to the " depth of colour required, and the nature of the fabric " being coloured." The time of immersion will depend on the nature of the fabric to be operated upon; and the colouring matter so prepared should be used in a cold state. " The fabric, " when finished, should be exposed to the air, when the smell " from the turpentine will go off." The colouring matters may be applied to the fabrics stretched upon a table by means of a brush; or they may be applied by rollers combined with brushes; or by pressure generally. The colours may be stopped out or resisted and discharged by the usual means. This invention may be applied to the restoring of the brightness of colours on fabrics already dyed.

[Printed, 3*d*. See Repertory of Arts, vol. 4 (*enlarged series*), p. 304; London Journal (*Newton's*), vol. 25 (*conjoined series*), p. 183.]

A.D. 1844, April 24.—N° 10,156.

ALLAIRE, René.—" Improvements in cleansing gentlemen's " garments." The apparatus used for this purpose consists of " hollow shapes suitable for receiving a coat therein, and other " hollow apparatus suitable for receiving trowsers or breeches " thereon, such hollow apparatus being so formed that steam " may be introduced therein, and thus heat the garment, which " will be found not only to dry a washed and wet garment, but " at the same time any oil or grease spots will be removed; and " the surfaces being brushed, and if desired the nap may be " slightly improved by soft sharp wire cards, and the surface of " the fabric thus will be greatly improved, and its original shape " preserved."

[Printed, 9*d*. See London Journal (*Newton's*), vol. 25 (*conjoined series*), p. 322.]

A.D. 1844, June 6.—N° 10,219.

WOODS, Joseph.—(A communication.)—" Improvements in " producing designs and copies, and in multiplying impressions " either of printed or written surfaces." This invention consists, " firstly, in obtaining transfers or reversed fac-similes on metallic " surfaces from designs or writings in lithographic ink, and from " prints and printing in general;" the process is termed "anas-

" tatic printing." The original design, writing, or printed paper to be copied must have been executed in ink of a saponaceous or fatty nature. The design, &c., has first to be wetted with, or placed in an acid solution, nitric acid being preferred, of sufficient strength and for such length of time, varying from a few minutes to several days, as the nature of the ink and age of the design seems to require. The design is removed from the acid solution and pressed between sheets of blotting paper, to remove the excess of acid, then placed face down on a plate of burnished metal, such as zinc in preference, and the two together submitted to considerable pressure. Or the original or old print or engraving may be first soaked with weak alkali, such as caustic potash, and then immersed in a saturated solution of tartaric acid. On being removed from this bath its wet surface is rolled over with a hard lithographic inking roller, charged with a small portion of ink, by which means the lines become revived by the fresh coating of ink. The vapour of volatile oils, such as oil of turpentine, may be employed to revive the ink instead of applying fresh ink as above. The original, so treated, is then soaked in diluted nitric acid, blotted with paper, and impressed on the metal plate as before.

The plate, with the design, &c., thus transferred on to its surface in reverse, is then converted into a surface to print from as follows. The plate is rubbed over with gum-water, and then with a mixture of gum-water and lithographic printing ink, which has the effect of charging the plate with ink. The gum is then washed entirely away, and the plate further charged with ink by means of a soft leather roller supplied with the ink. The plate may be employed in this state to print from, but when many copies are required, the following additional process is necessary. The plate is washed over with a mixture of phosphorous acid, phosphoric acid, and gum-water, this will effect a slight etching of the unprotected parts of the plate, whereby will be obtained a palpably raised surface for printing from.

The Patentee also describes his improvements on the printing press, for a description of which, see Abridgments on Letter-press Printing.

By " Disclaimer " dated 1844, December 2d, the Patentee alters and confines the title of his invention to, as follows, " Improvements in producing and multiplying copies of designs " and impressions of printed or written surfaces."

[Printed, 2*s*. 2*d*.]

A.D. 1844, June 12.—Nº 10,227.

SWINDELLS, John.—" Several improvements in the preparation of various substances for the purpose of dying and producing colour, also improvements in the application and use of " several chemical compounds for the purpose of dying and " producing color not hitherto made use of." These improvements consist, firstly, in "making a dyeing liquor by treating " madder (or munjeet) with about one-eighth part of its weight " of caustic alkali," or the equivalent of ammonia, and exposing the mixture to heat not exceeding one hundred and seventy-five degrees Fahrenheit, and then dissolving the product in water. Or if the madder be first treated with sulphuric acid no heat will be required. Secondly, in preparing cotton and linen by steeping them for some hours in a " solution of gelatine or albumen at " about sp: gravity of 1·04. After removing from this I pass " the goods into a strong solution of tannin for twelve hours. " I then wring them out and dry thoroughly either in the air or " stove." The third, fourth, fifth and sixth improvements consist in preparing, for dying blues and similar colors, the compounds of cyanogen and ammonia; my first improved method consists in preparing a substitute for the hoof and horn, and other animal materials usually made use of. This I accomplish by grinding to a fine powder or paste common coal, cannel, coke, or charcoal, or any other carbonaceous matter, and mixing therewith a solution of gelatine, albumen, or a mixture of each, and then thoroughly " drying the compound." My second method consists in passing the nitrogen of the air (which has or has not been deprived of its oxygen by combustion, and the resulting carbonic acid by lime) or the protoxide, deutoxide, or nitrous vapour "through " charcoal or any carbonaceous matter previously saturated " with potass or soda, kept at a full red or approaching a " white heat, in a perfectly close retort, or any other convenient " apparatus, until the required quantity of cyanide is produced. " If ammonia is to be produced, I pass the nitrogen gas, together " with one-fourth its volume of steam or aqueous vapor (with or " without the addition of atmospheric air) through charcoal or " other carbonaceous matter at a red heat, and condense the " ammonia so produced by the usual process." "In forming " ammonia or its compounds from the oxides of nitrogen or

" nitrous vapour I pass them, in conjunction with their own " volume of steam, through charcoal at a red heat, either in close " or open vessels; but if a compound of carbon and nitrogen, " namely cyanogen, is to be produced, the apparatus containing " the heated carbonaceous matter must be air-tight."

My seventh, eighth, and ninth claims consist " in dying or " producing colour from the cyanides, ferrocyanides, or other " compounds or salts of cyanogen," the chromates and bichromates; or manganates in combination with barites, strontia, or lime by precipitating their bases by an equivalent of sulphuric acid and using their liberated acids.

[Printed, 4*d*. See Repertory of Arts, vol. 5 (*enlarged series*), p. 43; London Journal (*Newton's*), vol. 27 (*conjoined series*), p. 108.]

A.D. 1844, June 19.—N° 10,231.

SUTCLIFFE, WILLIAM.—" Improvements in preparing, dyeing, " sizing, or dressing, drying, and winding yarns and manufac- " tured goods, or wool, flax, cotton, silk, and other fibrous " materials." The object of this invention is " so to arrange " machinery that the various processes of boiling, scouring, " dyeing, washing, drying, and winding are by the working of the " machinery carried on in regular and constant succession with- " out there being any handling or other manipulations necessary " intermediate of the various processes; and where necessary, " yarns are also sized and again dried and wound after being " dyed, washed, and dried," according to the same means. Various drawings are given in the specification of combinations of cisterns and gearing wherein the principle of boiling, scouring, dyeing, &c. continuously, is shown. The apparatus described as suitable for " dyeing blacks and purples " may consist of a series of four or more cisterns placed end to end, with several rollers in each at the top and bottom, a pair of squeezing rollers between each pair of cisterns, and a pair of draw rollers at the end of the series of cisterns. The cisterns may be separately heated with steam. The fabric is caused to pass round the rollers and through each cistern containing the required liquor; then through the squeezers and into the second cistern, and so on to the end of the series. The squeezing rollers are driven by suitable machinery.

[Printed, 2*s*. 9*d*.]

A.D. 1844, August 29.—Nº 10,296.

DE SUSSEX, FRANCOIS STANILAS, and ARROTT, ALEXANDER ROBERTSON.—"Improvements in the recovery of manganese used in making bleaching powder." The Patentees apply their invention "to the conversion of all oxides and the "carbonate and other combinations of manganese whatsoever, "whether native or factitious, which contain the metal in an "inferior state of oxidation into a superoxide of manganese "adapted to produce chlorine or oxygen gas." The "chlorides, "sulphate, sulphuret, or carbonate of manganese," may be converted into "sesquioxide or deutoxide of manganese" as follows: —First, by subjecting "dried chloride of manganese to a strong "heat, produced either by the united action of burning fuel & a "jet or jets of an oxyhydrogen flame or of a stream of atmospheric air thrown upon the burning fluel by a fan or other "suitable impulsive power." Secondly, by heating the chloride to an intense heat in "a retort made of fire clay." Thirdly, by heating the chloride with "lime" or "carbonate of lime," or "magnesia." "Sulphate of manganese" may be decomposed, so as to obtain from it an oxide of manganese to be afterwards peroxidized by heating a mixture of it to a strong calcining heat in a retort with any suitable combustible matter in proper proportions. The sulphuret so formed is reduced by means of a second heating in an open retort. "All the lower oxides or carbonates of "manganese, whether natural or factitious," may be converted into "superoxide," fit for affording chlorine, as follows:—First, by heating in a reverberatory furnace a mixture of the oxides or carbonates with such alkaline matter as potash or soda. The resulting fused mass, on being dissolved in water and exposed to the air, becomes decomposed by the absorption of carbonic acid gas, and peroxide of manganese is precipitated. Carbonic acid artificially applied, or alkaline bicarbonates, or various organic products hasten the above decomposition. Second, by heating a mixture of the oxide or carbonate with a suitable proportion of lime; or by treating the sesquioxide with one-half of an equivalent of aqueous hydrochloric acid; or by passing chlorine through sesquioxide in a moist state. Third, by passing "deutoxide of azote" over the surface of the oxide or carbonate in a moist state.

[Printed, 4*d*. See Repertory of Arts, vol. 5 (*enlarged series*), p. 323; London Journal (*Newton's*), vol. 26 (*conjoined series*), p. 149.]

A.D. 1844, September 14.—N° 10,318.

FERGUSON, Robert, and CLARK, John.—"An improvement in printing and calandering." The first object in this invention is "to apply to the cylinder or bowl (of an ordinary printing machine) a better surface, by means of which the ordinary covering of lapping is rendered unnecessary, and the employment of an endless blanket will not be required." This new lapping consists, first, of "one round of cotton cloth coated on one side only with india-rubber cement," "then of twenty or thirty rounds of Clark's patent india-rubber cloth, cotton cloth, mousline de laine, thin flannel, or fine woollen cloth coated on one or both sides with india-rubber cement, or Jeffrey's patent marine glue." This is then coated with india-rubber cement, well mixed with lamp-black, about one-sixteenth part of an inch thick, or with one round of Clark's patent cloth coated with the india-rubber mixed with lamp-black. As this lapping is being wound on some pressure is applied by a plain roller working in machine. When completed the lapping is "cured" by rubbing it over with sulphuric acid at 60° T. or muriatic acid full strength. When washed the bowl is ready for use. Or a band or fillet of flannel or other suitable material, prepared as before stated, may be wound on the bowl spirally from end to end; or the bowl may be covered with ordinary lapping and coated with Jeffrey's patent marine glue. Farther we obtain a smooth elastic surface for printing by forming a belt of twenty or thirty pieces of Clark's patent waterproof cloth, coated with india-rubber or Jeffrey's patent marine glue as before, "and having set a roller immediately above the bowl, we enclose the roller and the bowl" within the belt, and so form as it were a very short endless blanket. Such smooth surfaces may be damped with a revolving sponge, and then cleaned with a lint or dry doctor.

The second, third, and fourth parts of this invention consist in applying the above described surfaces to block printing and to the cylinder, bowl, or roller in letter-press printing; and also to callenders, as a substitute for the ordinary paper, pasteboard, or wooden rollers. We also use Jeffrey's patent marine glue, "and in its liquid state we mould, cast, and make it by the usual process of moulding and casting into elastic rollers to be used in letter-press printing."

[Printed, 4*d*. See London Journal (*Newton's*), vol. 26 (*conjoined series*), p. 165.]

A.D. 1844, September 26.—N° 10,329.

MACKENZIE, Sir George Steuart.—" An improvement or " improvements in the manufacture of paper, more particularly " for the purposes of writing, and copying writings, and machinery " for effecting the same ; also the manufacture of a fluid or fluids to " be used with the improved paper in the manner of ink." " The " paper (or parchment) is prepared after it has been sized, but " before it is finished, with a powder composed of about three " parts by weight of gall nuts, (or salts prepared from them, or " from other substances containing tannin), anhydrous ferrocyanide " of potassium one part, carbonate of lime one part, rice flour " three parts." " For blue writing a powder is prepared, consisting of anhydrous ferrocyanide of potassium, one part by weight, " and of rice flour, six or seven parts. The clear fluid used as " ink for the paper prepared as above is made with carefully " prepared permuriate of iron, or other per salts." " A black " indelible ink, from which copies may be taken on prepared " copying paper, may be prepared in two ways ; either by rubbing " down indian ink in a pretty strong solution of permuriate of iron " in water, or by making a stiff paste of the finest lamp black " prepared from bones, with strong mucilage of gum arabic, and " diluting this paste with a strong solution of permuriate of iron " in water (one measure of permuriate to seven of water)." The machinery for applying the powder to the surface of the paper consists of rollers and brushes suitably applied.

[Printed, 3*d*. See London Journal (*Newton's*), vol. 27 (*conjoined series*), p. 26.]

A.D. 1844, October 17.—N° 10,353.

GUIGUES, Edward.—" Improvements in printing on leather " and skins." The skins being tanned in Sicilian shumac, washed, steeped in dilute sulphuric acid, washed again, and submitted to the process of "striking out," are hung out to half dry, and then spread on a table and brushed out smooth. "The printing table and other accessaries are the same as those used for " printing on stuffs and other fabrics." "The preparation con- " sists in a solution, and is made in the following manner :—Take " half a gallon of muriatic acid of 18° by Beaume's hydrometer, " quarter of a gallon of aqua fortis, 36° B. ; put them into a flat " bottle with a long neck, known by the name of a 'matrass,' and

" put the bottle upon an oven heated to about 100° F.; then " augment the heat gradually to about 150° F." To this add "one " pound of sal ammoniac," gradually, and then "one pound of " pure tin, known by the name of granulated tin," one twentieth part of which is to be added " every ten minutes." "As soon as the " whole is perfectly dissolved, and the solution begins to get fine, " the bottle is to be taken off the oven, and the solution is allowed " to fine during two days, and then pour it off into a bottle and " keep it well corked." "To prepare a red colour I take four " ounces of Brazil chips, which I put into four gallons of soft " water, let it boil for six hours, and then strain the liquor through " a sieve, then let it remain about a month before use; for every " pint of colour I take a quarter of a pint of the solution, which " I mix well with the liquid colour; it is then ready for the " printer." " For violet I take the same proportion of Campeachy " chips and water as for red." "For yellow I use persian " berries in precisely the same manner."

"When the skin is printed and perfectly dry, dip it in cold " water, and then in water hot to about 100° F. (into twelve gal- " lons of which first put one pint of sulphuric acid); let the skin " remain in this water about three minutes, then soak it in cold " water for about ten minutes; then strike it out upon a table to " extract the water, and with the hand smooth the surface of the " skin with linseed oil, hang it up to dry; when perfectly dry " the skin is ready to be polished in the same manner as ordinary " skins."

[Printed, 3*d*. See Repertory of Arts, vol. 6 (*enlarged series*), p. 36; London Journal (*Newton's*), vol. 26 (*conjoined series*), p. 256.]

A.D. 1844, November 2.—N° 10,377.

JORDAN, Thomas Brown.—" Improvements in the manufac- " ture of blocks, or surfaces for surface printing, stamping, em- " bossing, and moulding."

The claim in this invention is "the manufacture of blocks or " surfaces for surface printing, stamping, embossing, and mould- " ing, by the use and application of mechanical arrangements and " apparatus." The invention consists in cutting or carving out the block by means of a revolving cutting tool, which is fixed on a *perpendicular* mandril, and caused to revolve at the rate of several thousand revolutions per minute. The cutting tool may be of any shape to suit the work in hand. The cutter is connected with a tracing tool through the intermedium of the pentograph motion. "The first and most simple method (of its "application) is to paste or attach firmly a drawing of the required "pattern on a board which is fixed to the face-plate, and to fix a "block of the requisite size on the moving table." The cutter, which has a steel gauge to regulate the depth of the cut, "when "at full speed is let down gradually on the block, and the tracer "is at the same time caused to pass slowly and steadily over the "lines of the drawing by the hand of the workman."

[Printed, 2*s.* 4*d.* See Repertory of Arts, vol. 5 (*enlarged series*), p. 350.]

A.D. 1844, November 21.—N° 10,398.

METCALF, David.—"A mode of manufacturing or preparing a "new vegetable preparation, applicable to dying blue and other "colours." "Consists in subjecting the leaves of the plant which "is sometimes called 'succory,' but is more commonly known "in commerce by the name of 'chicory' to the same process of "manufacture or preparation as has been heretofore applied to "the leaves of the woad plant, in order to fit them for the dyer's "use."

[Printed, 3*d.* See Repertory of Arts, vol. 6 (*conjoined series*), p. 170; London Journal (*Newton's*), vol. 26 (*conjoined series*), p. 324.]

A.D. 1844, December 7.—N° 10,420.

SMITH, James.—"Improvements in printing or ornamenting "various fabrics." This invention is for printing in the usual manner, and by ordinary blocks, "upon such parts of figured lace "as are wrought with patterns or devices in clothwork, or other "close compact ground capable of receiving the colouring matter, "and shewing up the devices or figures so printed." The blocks charged with "the colouring matter (or adhesive composition to "hold colour, or thin sheets of metal or powdered metal to be "afterwards applied) are to be carefully placed upon the wrought "patterns or foundation work of the lace."

[Printed, 3*d.* See London Journal (*Newton's*), vol. 26 (*conjoined series*), p. 399.]

A.D. 1844, December 7.—N° 10,421.

WOOD, William.—“Improvements in printing, dyeing, staining, “ or producing marks or patterns in or upon woven, felted, “ or other fabrics.” “These improvements apply principally to “ printing or staining fabrics of the carpet kind.” In carrying out the object of this invention, “I provide a series of cells or “ compartments, each being capable of holding a considerable “ quantity of the dyeing or staining matter, forming and arranging such cells or compartments, either upon a level or a curved “ surface, in any figures or devices capable of producing patterns; “ and I divide these cells by partitions, in order to limit and define laterally the flow of the dyeing or staining materials, the “ several colours employed being placed in separate cells, according to the desired colours of the pattern to be produced. These “ arrangements being made, I bring the face of the fabric in contact with the open parts of the cells, and cause it to dip or penetrate into the cells, for the purpose of taking up such quantities “ of the colouring matter as will suffice to dye or stain those “ parts of the fabric operated upon to the depth required.” These cells may be in the form of hollow or perforated tubes or types capable of being composed or set up into forms or patterns in frames, or inserted in perforated boxes or hollow cylinders. Steam or pneumatic pressure may be used in order to assist the deposition of the colouring matters on the fabric.

[Printed, 1*s.* 6*d.* See London Journal (*Newton's*), vol. 27 (*conjoined series*), p. 88.]

A.D. 1844, December 7.—N° 10,423.

NORMANDY, Alphonse le Mire de.—“Improvements in “ purifying lac, and in converting lac into shellac.”

The mode of purifying lac consists in placing the impure quality in a sieve and immersing it “in alcohol or other menstruum in which “ lac is soluble, but which, after evaporation, leaves the lac unaltered “ in respect to its properties.” The lac is left therein till dissolved, and to expedite the process heat may be applied. The alcohol is distilled from the solution, and the pure lac remains in a melted and dry state, which may be “ converted into shell lac by letting it “ fall whilst thus melted upon a pair of revolving smooth rollers, “ the surfaces of the rollers being kept constantly moist and cool

" with water." It is then allowed to slide down an incline of forty feet of sheet iron till cool.

Block lac or other kinds of lac are converted into shell lac by heating it in a funnel-shaped vessel of coiled pipes, heated with water or steam to 260° F. or fifty pounds to the inch. "The lac " is melted, and falling in that state upon the rollers above-men" tioned, whilst revolving, becomes converted into shellac."

If the inside of the coil be covered with wire-cloth of suitable fineness, this apparatus may also be used for purifying lac.

[Printed, 3*d.* See Repertory of Arts, vol. 6 (*enlarged series*), p. 45; London Journal (*Newton's*), vol. 26 (*conjoined series*), p. 401; Mechanics' Magazine, vol. 43, p. 60.]

A.D. 1844, December 12.—N° 10,432.

LOCKETT, JOSEPH.—"Certain improvements in apparatus for " preparing to be engraved or turned such copper or other metal " cylinders or rollers as are to be used for printing or embossing " or callendering calico or other fabrics." The improvements in apparatus for preparing copper or other metal rollers "consist in " so constructing it that it may be worked by steam or other " power, and that the anvil, which is made in the form of a cylin" der, and which revolves, has the copper or other metal cylinder " or roller parallel to and resting its whole length upon the upper " surface of the anvil, which is made so long as to allow of the " cylinder or roller being traversed a short distance on its surface " if required. A series of hammers or weights, which act as ham" mers, are placed over the copper cylinder, and in a line with it, " so that they can be elevated and allowed, by their falling on the " cylinder, to strike or hammer it. These hammers are raised by " a series of cams or other mechanical media. Both the hammers " and the cams are made to traverse a short distance sideway, if " required." The cams may be so placed as to raise the hammers in succession to a greater or less height, and cause them to fall successively on the roller. There is also provision for stopping any one of the hammers while the rest are in operation.

[Printed, 1*s.* 4*d.*]

A.D. 1844, December 12.—N° 10,436.

DE LA RUE, WARREN.—"Improvements in covering the surfaces " of paper and other materials with colour and other substances."

The paper is caused to travel upon and along with an endless felt, the surface of which is covered with india-rubber or gutta percha, over a metal table or platform. Over this table are placed, in a frame, a series of brushes, for the purpose of applying the colour. A "cycloidal" or rotary motion is given to the frame of these brushes, by means of a combined crank movement, whereby the brushes are caused to distribute the colour more evenly over the face of the paper. The colour is supplied to the paper in a dried and powdered state, or in a liquid state, from an angular colour trough with suitable slits or holes in its under part. The colour, when in the liquid state, should be stirred by rods attached to a bar, to which a to-and-fro motion is given by means of a crank. The edges of the paper may be protected by means of strips of metal in the form of endless metal tapes, which move with the paper and are properly kept down to the paper and guided by rollers and guide pulleys. The supply of colour may be further regulated by more or less inclining the colour trough towards the paper. When the paper is in separate sheets it is fed by hand on to the endless blanket, and thereby carried forward under the colour brushes; the proper progressing movement being secured by lowering a roller on the surface of the paper and pressing the ends of the sheets together. The elevating and depressing motion of this roller is effected by an adjustable cam and suitable levers. The colour, when in a fluid state, may be supplied to the surface of the paper carried by the endless web; also by means of a series of furnishing rollers, which transmit the colour one to the other from the colour trough to the paper; or by means of a revolving brush, acting on the furnishing roller and transferring the colour to the paper. When the colour to be applied is in the state of a powder, a shape may be communicated to the colour box, to assist the descent of the powder, by causing a revolving plate with inclined planes on its surface, to act on the end of the bar which carries the trough, at the other end of which is placed a spring which gives the return shake. Colour in the state of powder may be delivered from the trough through the slits already referred to, on to a revolving roller covered with felt, and be thus carried round on to the paper; or the trough itself may be so made that a revolving roller forms, as it were, the bottom of the trough, and thus carries round sufficient colour. The Patentee proposes, lastly, to deprive of water the brushes which have been washed and cleansed, by attaching them to a cylinder, to which a high velocity may be given.

[Printed, 4*s*.]

A.D. 1844, December 30.—N° 10,448.

WALLERAND, Louis Joseph.—(A communication.)—"This " invention consists in giving shaded stripes of color to woollen, " silk, cotton, or other fabrics, by the employment of a peculiar " arrangement of machinery which produces the effect in a more " expeditious, economic, and perfect manner than by the ordinary " hand process. This machine may also be used for dyeing shaded " stripes to form a ground upon fabrics intended afterwards to " receive a printed pattern;" firstly, "by the employment of a " series of wheels or rollers, which dip into the dye vat or vats," " for the purpose of taking up a portion of color and distributing " it in lines upon the fabric;" and, secondly, in a method " whereby " the color is supplied through the medium of either rollers or " of sponge or other similar absorbent substance, to the surface of " fabrics, and thus a variegated or shaded surface is produced." The apparatus may consist of a dye vessel or dye vessels, over which work a series of small wheels in pairs, one above the other, and in rows of eight or any other desired number. "The fabric, when " put in motion, turns the lower wheels, which are partially " immersed in the dyeing liquor, and also the upper wheels, " which press upon the fabric. The lower wheels, the peripheries " of which are covered with felt or other similar material, by " their rotary movement take up a portion of coloring matter " and deposit it upon the fabric." "On being wound on to the " beam the color spreads by capillary attraction, and forms the " required gradation of tint."

Thick fabrics may be coloured on both sides by adding to the above apparatus " a vessel containing dyeing liquor, which is kept " heated by steam. A series of cocks are attached to the bottom " of the vessel, and are intended to supply a limited quantity of " dyeing liquor to a series of small delivering wheels or rollers at " distances apart equal to the wheels" just described. In some cases where it is necessary to apply the liquor to the fabric at a boiling heat, "the rollers are displaced and sponge is applied to the " ends of the tubes which descend from the cocks."

[Printed, 1*s*. See Repertory of Arts, vol. 6 (*enlarged series*), p. 269; London Journal (*Newton's*), vol. 27 (*conjoined series*), p. 241; Engineers' and Architects' Journal, vol. 8, p. 330.]

A.D. 1845, January 6.—N° 10,454.

RUSSELL, Thomas, and PETER, John, Junior.—" Improvements in flax spinning and flax spinning machinery, which " are also applicable to the manufacture of other fibrous substances." These improvements consist in " passing the slivers " of flax, or any other fibrous substance intended to be spun, " through water, or through some fluid colouring substance, " while they are yet in an untwisted state, and in the additions to and modifications of the ordinary spinning machinery " requisite for the said purposes. The sliver of flax (or other " fibrous substance), after it comes from between the drawing " rollers, is carried under a small roller, which is partly immersed in the water or colouring fluid (contained in a trough), is " then carried upwards over and between two compressing rollers " which keep the sliver still untwisted, and serve also to free it " from any superfluous moisture which it may have taken up. " The sliver, after being wetted or dyed in an untwisted state, is " passed to the other parts of the machine to be spun in the usual " way." The thread may thus at once be produced in a dyed state.

[Printed, 1*s*. See London Journal (*Newton's*), vol. 27 (*conjoined series*), p. 335; Mechanics' Magazine, vol. 43, p. 34.]

A.D. 1845, January 16.—N° 10,472.

GODEFROY, Paul.—" Improvements in printing calicoes and " other fabrics." They consist, " first, in so arranging the apparatus for producing a sieve for paste colours, that the sieve cloth " may, by suitable mechanical means, be pressed on the surface of " the color so as to cause the color to pass through to the upper " surface." This is effected by straining a sieve cloth over the bottom of a frame, which is then placed in the vessel containing the colour. Two bars cross the ends of the frame, which may be depressed or otherwise by screws working through them into the platform below.

" Secondly, the mode of arranging apparatus for applying color " in streaks, and shading it on the surface of suitable sieve cloth " for block printing." The apparatus here referred to consists of seven small pump barrels, in which the colours are placed, arranged at one end of a revolving sieve. In these barrels are placed pistons which are moved upwards and downwards by mechanical means and are caused to press out the colour through a stopcock at the bottom of each on to a revolving roller, which transfers it to the sieve. A revolving brush there distributes the colour in the usual manner.

"Thirdly, in the mode of arranging apparatus for applying color " in streaks on fabrics, and shading thereon." "This is a machine " for applying color directly on the fabric to be stained, and for " shading the color when placed thereon by pumps, in a similar " manner to that above described for applying and shading color " on sieve cloth for block printing."

[Printed, 1*s*. See Repertory of Arts, vol. 6 (*enlarged series*), p. 218.]

A.D. 1845, January 25.—N° 10,494.

SEYRIG, Johann Gottlob.—"Improvements in scouring, " bleaching, and dyeing machines; also in machines used in filter- " ing and in drying or extracting liquids or moisture from diffe- " rent substances." These improvements consist in the application to the "hydro-extractor" patented by Alexander Alliott, 24th February 1844 "of two separate contrivances, by one of which, " when it is desired to pass considerable quantities of liquor " through a machine in a given time, great part of the power that " would otherwise be wasted is saved; and by the other the liquor " can be circulated at a slower speed, and, consequently, remain " longer in contact with the goods, without, at the same time, " reducing the pressure of the liquor upon them." The saving of power is effected by the application of a "turbine contrivance," which is attached to the bottom of the "hydro-extractor," and also to the periphery of the compartment which contains the goods. " The liquor used being driven (by centrifugal force) with a force " proportioned to the speed of the machine, against the curved " plates in the turbine, it serves considerably to reduce the power " otherwise required to drive the drum (the hydro-extractor)." The liquor is caused to "circulate at a slower speed" by means of a mechanical arrangement whereby the ordinary course of the liquor employed is reversed and caused to enter the cloth to be acted on at its periphery and proceed inwards.

A modification of this machine may be applied to filtering by placing the filtering medium in the chamber otherwise occupied by the cloth.

Various other improvements are proposed in the construction of this machine, namely, "in the application of weights so applied as "to bring back the centre of gravity of the drum of the machine "to the centre of the diameter, when, by unequal loading the "centre of gravity has been disturbed;" also, "in the application "of an unperforated drum, fixed loosely on the shaft, and surrounding the perforated drum containing the goods to be operated upon," which acts by dividing "the friction of the air so "much as considerably to reduce its retarding effects;" also in "a "plan for allowing the drum to slip round on the shaft upon the "first starting of the machine;" also in a means of transferring the power accumulated by the speed of one drum to that of another drum when two such machines are coupled together.

[Printed, 1*s.* 4*d.*]

A.D. 1845, March 3.—N° 10,541.

KNIGHT, SAMUEL.—"Improvements in machinery or apparatus "for scouring, washing, cleansing, and other similar purposes." "I employ the ordinary 'dash wheel,' that is to say, I have a "hollow drum or cylinder [or it may be oblong boxes or chambers], revolving upon a spindle or shaft, but instead of dividing "it, as usual, into four quarters or chambers," I divide it into two compartments.

[Printed, 8*d.* See London Journal (*Newton's*), vol. 27 (*conjoined series*), p. 260.]

A.D. 1845, April 17.—N° 10,624.

WILKINSON, SAMUEL.—"A machine to be called a patent "washing, wringing, and mangling machine." The object of this invention is to have "a machine of a convenient portable form "which may be adapted for washing, wringing, and mangling." The washing part of the machine consists of a wooden box with a semicircular bottom, into which the clothes to be washed are put; a vibrating frame is caused to move the clothes backwards and forwards, and at each stroke to press and squeeze them against a perforated copper plate placed at a suitable angle at each side of the box. The wringing is performed by passing the clothes between two rollers mounted on an attached frame, the upper one of which may be weighted by means of weights and levers. The mangling is effected by the same rollers; the upper roller being hoisted up sufficiently by means of a wheel and ratchet and rope attached to admit of the clothes being wound round the lower one and then lowered again.

[Printed, 10*d*. See Engineers' and Architects' Journal, vol. 8, p. 386.]

A.D. 1845, April 19.—N° 10,626.

SHEPHERD, William.—"Certain improvements in the art of "printing calicoes and other surfaces," consisting, in the first place, in the application in the printing of fabrics "of a peculiar "preparation of caoutchouc or india-rubber, now commonly termed "'vulcanized' india-rubber, either employed as a covering for "rollers or bowls or used as an endless printing blanket or web in "lieu of the ordinary woollen or other blanket at present em"ployed."

Secondly, when this improved web or blanket is employed for printing by the common machines it should be of convenient width and from four to six yards long, evenly joined at the ends before the process of vulcanizing has been effected. "It is then to "be passed over a frame, and which may be applied above the "printing machine in place of the ordinary blanket rollers." This short endless blanket may be cleaned by first scraping it with a doctor, and then rubbing it on the face with another short revolving endless blanket made also of vulcanized india-rubber, which is caused to press against it by means of a friction roller. Another doctor cleans the surface of this subsidiary blanket, and a steam drying cylinder is introduced to remove any damp that may remain.

Thirdly, consists in an improved sieve roller which is constructed by covering a roller with a sheet of india-rubber which shall be impervious to air. The elasticity of this roller may be varied by regulating the quantity of air confined.

Fourthly, in the application of "a covering of spongy or porous "vulcanized rubber placed on a centre or axis of iron or wood," to be used as a furnishing roller; "also the applying of india"rubber rings or divisions made by strips of rubber being attached "to the surface of ordinary woollen or other sieves for surface "printing, by which means various colours may be printed at the "same time, both in 'pegging and rainbowing.'"

[Printed, 6*d*. See London Journal (*Newton's*), vol. 27 (*conjoined series*), p. 322.]

A.D. 1845, May 6.—N° 10,657.

BURCH, Joseph.—" Improvements in machinery for printing " calico and other fabrics, part of which improvements is appli- " cable to other purposes where resistance to heat is required." This invention consists, first, " in certain apparatus to be applied " to my patent block printing machine for the purpose of shading " or rainbowing the designs, and for certain improvements in my " colour boxes." The large sieve roller for furnishing the block as it passes and repasses over its surface, is surrounded by smaller colour rollers for the purpose of distributing the colour evenly on the sieve roller. There is also a reserve roller clothed with a thick blanket, which absorbs the colour and assists in regulating the supply. The furnishing roller receives the colour from the feeding roller and communicates it to the sieve roller. " The feeder rollers " are flanges having a hole through the centre, and are placed " upon a mandrell at required distances, according to the shading " of the design, each one working into a separate compartment " of the colour trough.'

Also, " of a wax printing machine." The printing cylinder of this machine " is a hollow metal cylinder, having an aperture at " the axis for the admission of steam or hot air." " The wax " trough is provided with a chamber, underneath which, being " filled with steam, keeps the wax in the upper chamber in a " melted state." A roller working in this trough supplies the wax to the surface of the heated printing cylinder. Also, " in improvements and additions to my punching machine." " It has " been found that the plungers, from continual exposure to heat, " become worn, and consequently loose in the guides; I have " lengthened them and fixed a guide frame above the fire box." " Additional screws work into grooves in the plungers for the " purpose of keeping them steady." The (new) fire box partition is for the purpose of dividing the fire from the flue, and by means of this division in the fire-box the heat is made to pass twice between the plungers; and, lastly, " consists in a water shield for " the purpose of protecting the face and hands of the workmen " from the heat of the firebox (of the punching machine); it is " made of metal and hollow, with a supply cock and tap, and an " exhaust cock at the opposite corner; it is fixed in front of the " firebox and extends underneath it. It has holes sufficiently " large to allow the heated plungers to pass through the channels

" for the cold water, being cored out between." "This part of " my invention is applicable to all furnace mouths where the heat " is so great that the workmen cannot remain above a few seconds " without retreating," or being inconvenienced.

[Printed, 1*s.* 4*d.*]

A.D. 1845, May 8.—N° 10,661.

M'INTOSH, JOHN.—" Improvements in preparing materials for " colouring and printing calicos and other fabrics, and improve- " ments in printing and ornamenting fabrics." The first part of this invention consists in "combining flocks (of various colours) " with a solution of india-rubber or a solution of gutta percha, " and using the same as a printing material." The flock is mixed with a clear solution of either material to the usual consistency and printed with the ordinary cylinder or plate.

Secondly, consists in "applying a roller coated with india-rubber " to engraved rollers or plates, for the purpose of keeping the en- " graving clean." "The roller may be applied in any convenient " position, so as to be pressed in contact and revolve with the " engraved roller, or by passing it to and fro over the engraved " plate."

Thirdly, "in an apparatus for spreading colour on to a sieve " cloth for block printing." The colour is put into a conical shaped box or trough, the bottom angle of which is open and presses on the sieve. As this trough moves to and fro it supplies colour to the sieve, through the opening; which colour is distributed by brushes attached to the trough.

[Printed, 8*d.* See Repertory of Arts, vol. 7 (*enlarged series*), p. 17; London Journal (*Newton's*), vol. 27 (*conjoined series*), p. 336.]

A.D. 1845, May 29.—N° 10,691.

FIRCHILD, CHARLES WILLIAM.—"An improved cutting " slicing, grinding, and rasping machine." This invention consists "in a machine arranged with a cutting or sliding blade " situated above two rubbing plates or surfaces, which plates receive " the cut substances between them as the said substances leave the " blades and grind or rasp them for use." There is an open box to contain the substances to be operated upon. "The blade may " be supplied either by the hand, or by an endless feed cloth, or by " two grooved feeding rollers." The blade or cutter "is sus-

"pended by two limbs from the front of the feed box, and kept close up to it by the guides." "A reciprocating and an alternately rising and descending motion" is given to the cutter by means of a rod and crank. Under the cutters are placed "two parallel graters or rubbing surfaces, made of toothed iron, mill stone, or other suitable substance, which are grooved or toothed on their inner surfaces, and move to and fro in the hanging bearings," by means of a double crank, "and between which the cut material falls from the cutter in order to be ground or rasped." The surfaces may have three recesses as well as teeth cut on them. "These plates or surfaces are kept together by friction rollers." The cutter and grinding plates may be worked separately or together.

The "grinding plates" may be made "wedge shaped, and fitted with a parallel piece at the bottom of each, so that the movement of the two surfaces in different planes causes the toothed and wedged formed surface of each plate to recede from and approach towards the other alternately during the progress of the stroke."

[Printed, 9*d*. See London Journal (*Newton's*), vol. 28 (*conjoined series*), p. 97; Mechanics' Magazine, vol. 44, p. 49.]

A.D. 1845, June 3.—N° 10,703.

NEWTON, William.—(A communication.)—"Improvements in dying cotton, flaxen and hempen yarns and fabrics." "These improvements consist principally in the production of sulphuret of lead, which is effected, first, by means of one of the mordants of lead hereafter described, the novel application of which to the purpose of dying constitutes one improvement; and, secondly, by the employment of sulphuret of calcium. Sulphuret of calcium is obtained by boiling quick lime with flowers of sulphur. The mordants in question (obtained by the processes usually employed in chemistry) are the double plumbate of potash and lime, the double plumbate of soda and lime, and the subacetate of lead."

"The threads or fabrics of cotton, flax, or hemp, to be dyed are first to be scoured; they are then to be steeped in a solution of one of the above-mentioned mordants of lead, and after being taken out are allowed to drain; they are then washed with much water. In order to obtain a yellow dye, they must now be passed through a solution of bichromate of potash, which produces a

" yellow of greater or less depth, according to the shade required " to be obtained. For a slate grey, composed solely of sulphuret " of lead, the threads or fabrics, after being impregnated with the " mordant, are to be dipped in a solution of sulphuret of calcium; " the process is finished by softening the shade in the same manner, will be presently described for the black. For black the " threads or fabrics on coming from the mordant are passed " through the sulphuret of calcium, they are then washed and " converted into black by means of iron and logwood, as is generally done by the processes pursued in dyeing, which give the " shade required in commerce. The dye is finally softened in the " ordinary way."

[Printed, 3*d*. See London Journal (*Newton's*), vol. 27 (*conjoined series*), p. 396.]

A.D. 1845, June 10.—Nº 10,715.

MURDOCH, James.—(A communication.)—" Improvements in " dyeing." "The invention consists in the employment of certain " materials as substitutes for cream of tartar and for the compound " of cream of tartar and alum, which are ordinarily employed as " mordants in dyeing." The substitute for cream of tartar may be composed as follows:—" To one hundred pounds of sea salt add " three hundred pounds of water, and when the salt is completely " dissolved add to the solution twenty pounds of nitric acid; and " in the case of the mordant being required to be analogous to " that composed of cream of tartar and alum, one hundred pounds " of sulphate of alumina are to be gradually added to the mixture. " The water employed should be cold, and the mixture should be " but slightly stirred, especially whilst the sulphate of alumina is " being added thereto, in order to avoid as much as possible the " disengagement of nitric and muriatic acid gas, which would injure the quality of the mordant. The new mordant may be used " either in the dye bath or in the mordant bath, in the same manner and in the same proportions as cream of tartar or cream of " tartar and alum."

[Printed, 2*d*. See London Journal (*Newton's*), vol. 27 (*conjoined series*) p. 397.]

A.D. 1845, July 8.—Nº 10,757.

GREENWOOD, John, MERCER, John, and BARNES, John.—" Improvements in the manufacture of certain chemical agents

" used in dying and printing cottons, woollen, and other fabrics." " These improvements consist, first, " in the manufacture of " stannate and stannite of soda and potash in a dry state, or " in crystals, or in a state of paste," by " fluxing nitrate of " soda or potash with tin;" and also " the making tin, preparing " liquor for dyers and printers, by dissolving in water stannate or " stannite of soda, or potash which has been [so] manufactured." The stannate is prepared thus:—" We take twenty-two pounds of " caustic soda (one gallon weighing thirteen and a half pounds) ' and put it in an iron crucible, heated to a low red heat by a fire " under it;" when watery vapours cease to be evolved " we " then add eight pounds of nitrate of soda, and four pounds of " common salt. When the mixture is at or near the fluxing heat, " we add ten pounds of feathered block-tin; we stir the materials " together with an iron stirrer;" " the stirring is continued as " well as the heat under the crucible, until ignition or deflagration " takes place, and it becomes red or white hot, and of a pasty " consistency; the product is stannate of soda." " If it is de- " sired to have it in a more pure state, we merely dissolve the dry " stannate of soda in water, and allow any impurity it may con- " tain to settle." " We take the clear liquor and evaporate down to " crystalization, or to a pasty state, not quite dry, but so dry as not " to let any fluid run from it." The stannite of soda is prepared thus:—" We take four pounds of common salt, one gallon of " caustic soda, weighing thirteen and a half pounds, one pound of " nitrate of soda, and four pounds of feathered block-tin; we put " all these at once into a hot iron crucible over a fire, and stir and " boil to dryness, still stirring the dry powder so long as any am- " monia is given off. We then consider the process finished."

The "preparing liquor" for dyers and printers is prepared by dissolving about three pounds of the stannate of soda in one gallon of water, and then diluting it further when required to be used, by more water according to the discretion of the printer. If stannate or stannite of potash be desired, then the equivalent of potash will be employed instead of soda.

[Printed, 3*d*. See Repertory of Arts, vol. 7 (*enlarged series*), p. 281; London Journal (*Newton's*), vol. 28 (*conjoined series*), p. 109; Mechanics' Magazine, vol. 44, p. 109; Practical Mechanics' Journal, vol. 1, p. 178.]

A.D. 1845, July 9.—N° 10,759.

LEIFCHILD, JOHN.—" Improvements in the manufacture of " blue, to be used as a substitute for stone blue." The improved substitute is prepared thus—"I take by weight four parts of "Chinese blue, one part of Turnbull's blue, and one part of oxalic "acid, and I mix them well together, and then add boiling water "gradually till the whole is dissolved; and to this combination I "apply one part by measure of the liquid called sulphate of "indigo." "I do not confine myself to these exact proportions," nor is it absolutely necessary to add the sulphate of indigo.

[Printed, 3*d*. See Repertory of Arts, vol. 7 (*enlarged series*), p. 117; London Journal (*Newton's*), vol. 28 (*conjoined series*), p. 35; Mechanics' Magazine, vol. 44, p. 110.]

A.D. 1845, July 12.—N° 10,769.

SIMPSON, Richard.—(A communication.)—"Improvements "in bleaching yarns and fabrics."

This invention consists in "the employment of certain solvents, by "which the yarns or fabrics of linen are to be prepared for bleaching "[by boiling therein,] before the ordinary means or processes of "bleaching are resorted to." The solvents may be "simple acids, "followed by solutions of soda ash, or acids combined with soda "ash." "A composition of solvents" "is made by twenty-two "pounds of sulphuric acid of the first quality and strength, "diluted in fifty gallons of pure water, which are to be boiled "together in a leaden vessel, and whilst boiling, one hundred "weight of the best soda ash is to be introduced into the liquor "by small quantities at a time." The effervescence having ceased, the boiling is continued "till the soda ash is quite dissolved." When well settled the clear liquor will be ready for use, or "the liquor may be evaporated and its essential properties crys- "talized in the state of salt." The above solvent may be rendered "caustic," "by adding half a hundred weight of lime, and an "equal quantity of potash." The yarns may be steeped in a cold solution of the above solvent, or boiled in the solution previous to the ordinary process of bleaching.

[Printed, 3*d*. See London Journal (*Newton's*), vol. 28 (*conjoined series*), p. 163.]

A.D. 1845, July 25.—N° 10,783.

BROOMAN, Richard Archibald.—(A communication.)— "Consists in certain improved methods of dyeing textile fabrics "in graduated or shaded stripes or bands. The cloth or other

" fabric is folded into the form proper for dyeing before it is " brought to the dyeing machine, or it is folded after immersion, " or while it is in the course of being immersed in the dyeing bath; " and in the former case, that is when folded, before it is brought " to the dyeing machine. This is either done by hand or by ma- " chinery. When the operation is performed by hand the fabric is " folded lengthwise into as many plaits or folds as there are to be " stripes or bands, that is to say, into plaits, each of the breadth " of the intended stripe or band, and the plaits or folds are fixed by " means of pins." The folding may also be done by "machinery," and to the specification is attached twelve sheets of drawings, showing various modes by which this may be effected; also modes of suspending in frames the piece so folded for the purpose of immersing in the dye liquor the folded edges; also various shapes of dye vessels, and different modes of applying the folded edges to the liquors; and also other details which may be adopted for the more effectively carrying out the principle of this invention.

[Printed, 2*s*. 9*d*.]

A.D. 1845, October 23.—N° 10,889.

STEVENSON, William Henry.—(A communication.)—" Im- " provements in machinery or apparatus to be used in dyeing or " staining." " This invention consists in certain arrangements of " apparatus for producing upon cotton, worsted, and other goods " and fabrics, parallel lines of color which, when softened at their " edges by capillary attraction, as is well understood, will have the " appearance of shaded stripes, or, as they are sometimes termed, " rainbow tints." There are several modes described for effecting this object:—first, " a wooden framing, provided with a series " of angular bars placed parallel to each other," is placed horizontally in the vat containing the dyeing liquor, and is attached to its sides; another wooden frame, also supported by the sides of the vat, "is similarly provided with angular bars, which are so arranged " that when this framing is placed over the vat, they shall inter- " cept the space between the bars of the first frame." The last-described frame " is laid over the fabric (which is stretched across) " in order that the projecting edge of the angular bars of this " framing coming against the fabric may press it down between " the angular bars of the other framing and crimp it into plaits or " folds lengthways of the fabric;" "the fabric being thus crimped

" and forced down in ridges on to the surface of the liquor will " take up the color in parallel lines; and a slow rotary motion " being given to a roller the fabric will be drawn through the vat " and receive or take up the lines of color as it passes over the " dye liquor and is wound upon the roller."

Second. An apparatus for "producing the stripes or lines of " different colors at one and the same operation." This apparatus consists of two or more pipes which are supplied with different colours from cisterns above; on the upper sides of these pipes are placed " two series of jets or tubes with flattened ends." The fabric is caused to move backwards and forwards over these jets while the dye liquor issues from them. "Steam boxes" may be attached for the piece to pass through before and after the dyeing.

Third is "a method of obtaining parallel stripes of color by " the use of endless bands, which pass through the dye liquor, " and becoming saturated with the liquor, take up a portion and " deliver it on to the under face of the fabric." The fabric is caused to pass between the roller round which the bands revolve at regulated distances, and a pressing roller which forces the colour into the fabric.

Fourth, is " an arrangement of apparatus which, in its object, " somewhat resembles that first described, it being intended to " crimp up the fabric, and when in that state to draw the bottom " edges of the plaits or folds through the dye liquor, in order to " obtain the lines of color." To effect this the fabric is hooked at each edge to endless bands, which as they progress forward approach each other and allow the fabric to be suitably crimped by crimping rollers. The fabric so crimped is then passed between two perpendicular rollers which compress the folds or crimps. Pins are put through the upper edges of the folds, which are then caught by hooks on two endless bands, which thus carry the fabric forward and into the three dye vessels, where the lower edges of the folds are dipped into the liquors. The dye cisterns may contain liquors of different strengths, and into the weakest the fabric may be dipped deepest. The fabric is then attached to a " horizontal drum mounted on suitable framework and provided " with radial points upon which the fabric is hung to dry."

Fifth. "Another arrangement of apparatus for producing lines " or stripes of color upon fabrics." In this case the fabric is caused to pass round the under side of a cylinder containing the colour or dye liquor. "As it passes under the cylinder small "streams of dye liquor issue from rows of holes and produce lines "of color upon the fabric."

"The last part of this invention consists in so suspending the "fabric to be stained with lines or stripes of color, that when "dipped into a dye vat it shall take up the color in a manner "similar to the fourth described arrangement." By this means the fabric is properly folded and hooked to a circular plate, then lowered into a circular vat or dye vessel more or less deep and frequent as may be desired.

[Printed, 2*s.* 5*d.*]

A.D. 1845, Octooer 25.—N° 10,896.

DAVIES, John.—(A communication.)—"Improvements in the "method of dyeing or staining woven or piece goods or fabrics, "and in the machinery or apparatus to be used for such or "similar operations." "This invention consists in the appli-"cation, employment, or use (for the purpose of producing "'rainbowing' effects) of a tube or tubes having small foun-"tain jets or spouts through which the colouring matter is "forced (either heated or otherwise) over which the cloth or "fabric to be dyed or stained is caused to pass. The colouring "matter is thus deposited upon or forced through the cloth "or fabric in stripes, corresponding in number and distance "apart with the said fountain jets or spouts, the capillary at-"traction causing the dye or colour to spread, and gradually "shading and softening it off towards the edges of the stripe." The apparatus described for carrying out this invention consists of a vessel for containing the colour, or several vessels containing different colours. Tubes are taken from these vessels, and on the tubes are attached the ets. The fabric is caused to pass over the jets while they flow with colour, and is thereby stained in longitudinal stripes. "If it be desired to produce the stripes in waved "or other (instead of direct) lines, a suitable traverse motion must "be given the cloth rollers or to the tube."

[Printed, 8*d.* See London Journal (*Newton's*), vol. 28 (*conjoined series*), p. 413; Patent Journal, vol. 1, p. 121.]

A.D. 1845, November 3.—N° 10,908.

BROOMAN, Richard Archibald.—(A communication.)—"Improvements in printing and figuring silk, cotton, and other

" textile fabrics." Those parts of the fabric to be left undyed (called reserves by the inventor) are tightly compressed " between blocks or dies, so that on the fabric being immersed in " the dyeing vat the parts so compressed shall be protected, " or, in other words, preserved from the operation of the " dyeing liquor." The cloth to be operated on is wound round an apparatus resembling a wince, on the bars of which are placed the halves of the blocks or dies forming the pattern, the corresponding halves of which being attached to other bars are brought down upon them and screwed tightly together. The wince is then half immersed in a cistern of dye liquor and turned till the cloth is dyed. Or, iron rings may be put round the blocks and tightened by means of screws.

[Printed, 1*s*. 1*d*. See Mechanics' Magazine, vol. 44, p. 353.]

A.D. 1845, November 11.—N° 10,935.

BIELEFIELD, Charles Frederick.—" Improvements in the " manufacture of embossed or prepared paper, calico, leather, and " other fabrics and articles." This invention relates first, to embossing by means of one or two rollers, heated or otherwise, having the desired design engraved upon them. The paper, fabric, leather, or other material or combination of them, alone or pasted on wood, are passed between the rollers for the purpose of producing moulds, &c. Secondly, " in using calico or other woven " fabric with papier mache or other pulpy or plastic preparation " of fibres, by which strength will be obtained by the woven " fabric and substance." The pulpy preparation may be coated on the fibre or interposed between plies of the fabric, and, when sufficiently dried, embossed by suitable pressers. Thirdly, " in " the use of india-rubber in combination with glycerine, glue, " treacle [or gluten of wheat or other flour], when preparing a " plastic matter from fibrous materials to be placed on or between " paper, leather, or other fabric to be employed so as to obtain " articles similar to papier mache, or for producing mouldings."

[Printed, 4*d*. See Repertory of Arts, vol. 7 (*enlarged series*), p. 352; Patent Journal, vol. 1, p. 63.]

A.D. 1845, November 20.—N° 10,965.

DONALDSON, James.—" Improvements in the processes of " scouring, bleaching, and washing wool, cotton, silk, and other " fibrous substances, both in a raw and manufactured state."

These improvements consist in the employment of the following "compound or mixture of materials to be substituted in the place "of urine and other matters." "Boil twenty pounds of potatoes "in three gallons of water, and crush them into a paste, then "put in thirty pounds of soda ash. Gradually then introduce "two gallons of spirits of ammonia, and stir the ingredients well "together; and when well mixed add by degrees sixty pounds of "common salt." This scouring mixture should be exposed to the air for some time in shallow vessels, and is then ready for use. In some cases a little "lard or grease may be added to prevent the "crystallization of the ingredients."

[Printed, 3*d*. See Repertory of Arts, vol. 8 (*enlarged series*), p. 238; London Journal (*Newton's*), vol. 29 (*conjoined series*), p. 196; Patent Journal, vol. 1, p. 307.]

A.D. 1845, December 10.—N° 10,994.

NEWTON, Alfred Vincent.—(A communication.)—"Improvements in printing and dyeing various fabrics." Consist, "firstly, in an arrangement of machinery whereby the operations "of printing or staining patterns upon various fabrics may be "effected." "The main framing supports a series of vats containing dye liquor, which is taken up on the surface of "rollers, and imprinted upon the cloth to be dyed." "Cog "wheels are keyed on each end of the rollers and are for the "purpose of taking into endless chains (one on each side of "the machine), which are provided with small hooks along "their whole length, to keep the cloth distended until the "operation of printing or dyeing is completed." On the surface of the rollers the pattern or design which is intended to be transferred in color to the cloth is formed in relief and covered with felt. Over and upon these rollers are placed other rollers the counterparts of the first, which serve to keep the cloth in contact with the raised pattern on the first or undermost set of rollers. "On the extreme ends of the machine are mounted rollers to "guide the chains through the machine." The chains are further kept perfectly parallel to each other by grooved bars. The motion is given simultaneously to all the rollers by means of bevil gearing. The fabric is hooked on to the chains and passed perfectly straight through the machine, and the colours may be strengthened as required by passing the cloth repeatedly over the printing rollers. "The designs principally used are shaded ser-

" pentine or wavy lines. The dye vats may be heated either by " steam pipes or by a fire beneath. When color of a thick or " pasty nature is required to be used, it will be necessary to have " an intermediate roller between the vat containing the color and " the printing roller." Or a hollow roller filled with steam is placed over the dye vat for the purpose of fastening colors. Round the circumference of the roller several rows of holes are bored, and over these, as covers, are fastened hollow rings forming circular steam-tight chambers. Over these the fabric is passed continuously while in a wet state with the dye.

"Secondly, in the mode of producing new effects of color by " sprinkling granulated and liquid colors upon fabrics, and " afterwards fixing such colors." The apparatus employed for this purpose consists of a steam chest or box full of steam, into which the cloth (damp or dry) is caused to enter and is therein wound on a roll, accompanied by a back cloth to prevent marking off. "The operator, when using dry colours to produce the " desired effect on the cloth, employs them in a state of granulated powder, previously mixed with gum and sugar," and " proceeds to sprinkle them over the surface without any apparent " design, and the face of the cloth being thus covered, is drawn " into the steam chest, when the steam in that vessel will dissolve " the colors and fix them in the fabric." When "liquid colors " are used they may be sprinkled on the fabric by suitable " brushes. In some cases it may be advisable to use stencil " plates to direct the splashed or powdered color into something " like a defined shape."

Thirdly, consists in improved apparatus to be employed in " stopping out;" or "printing the required pattern upon the " fabric in any suitable cement or composition, which will resist " heated dye liquor." "The composition which the inventor " employs for 'stopping out' is made by melting down seventy-" five parts of rosin of commerce, or other suitable resinous sub-" stance, and mixing therewith, while in a fluid state, twenty-" five parts of whiting." The machine employed for the purpose consists of a vessel in which the cement is kept in a fluid state by means of gas pipes underneath or a fire. The block by which the impression is to be given is supported at its ends by rods which are bolted to cross bars, and these cross bars are keyed to vertical sliding rods. The block is elevated towards the cloth and depressed into the vessel of cement by cams working between rollers on the vertical sliding rods. The fabric is unwound from the beam, and taken up after printing by means of rollers and connecting chains driven from the main shaft. "The block " consists of an iron grating, provided at each end with slots for " the reception of the rods; on the upper face of this grating the " pattern, which is to be cast in brass or other metal, is screwed, " the repeats being placed at convenient distances along the whole " length of the grating, as may be required."

[Printed, 3*s*.]

A.D. 1846, January 12.—N° 11,032.

HANCOCK, CHARLES.—" Improvements in the manufacture of " gutta percha, and its applications alone and in combination with " other substances."

These improvements relate to the cleansing and preparing of gutta percha; to the combining of it with the " elastic and water-" repellant substance called 'jintawan,' recently imported for the " first time from the East Indies;" and with caoutchouc. Also to various applications of gutta percha alone, or mixed with jintawan and caoutchouc. (See Abridgments on Gutta Percha and India-rubber.) The Patentee proposes also to prepare varnishes from the above-named materials, alone or mixed with suitable proportions of " sulphur or orpiment, or other sulphuret, and animal or vegetable " wax or fatty matter," the whole being dissolved in spirits of turpentine. Varnishes so prepared may be incorporated with colours "and used for the purpose of painting or printing cloth, " leather, or any other fabric."

[Printed, 7*d*. See Repertory of Arts, vol. 8 (*enlarged series*), p. 164; Mechanics' Magazine, vol. 45, p. 138; Patent Journal, vol. 1, p. 164.]

A.D. 1846, February 17.—N° 11,095.

GUICHARD, EDWARD AUGUSTE DESIRE.—" Improvements in " printing calico and other fabrics." By this invention "any " number of colours may be produced on the fabric by a single " action of the block, the number being limited only by the size of " the machine;" "which invention is carried out by an exceed-" ingly simple arrangement, by the employment of bars placed on " the same plane, parallel to each other, receiving in this state the

" colours. Then by an arrangement of machinery these bars are " pushed lengthways, the one to the right, the other to the left, or " allowed to remain in their position, according to the nature of " the design required." The bars referred to here are long, narrow colour sieves, arranged parallel to each other, and almost close together. When these sieves are teared or rainbowed in colours across, they are then caused to slide along each other, some to one side and some to the other, thereby re-arranging the position of the colours relatively. The block being cut or arranged so that now, at one dip, each part is furnished with its own colour, somewhat in the same way as in the case of the "toby tub; or the fabric may be applied to the sieves themselves, so arranged, and a species of printing effected.

[Printed, 1*s*. 2*d*.]

A.D. 1846, March 11.—N° 11,126.

CALVERT, Frederick Crace.—"Improvements in the prepara- " tion of the article called 'jute,' rendering the same suitable for " various useful purposes." The jute may be "cleansed" by steeping the fabric in water, then thoroughly washing it with a mixture of "oléate, stearate, and margarate of potass." It is then passed into a solution of weak "chloridric acid," and afterwards washed well, and then it is steeped in a weak solution of "chloride " of lime." These operations may be repeated as often as desired. The "bleaching" of the jute may be then effected by steeping it, first, in weak "chloridric acid" for twelve hours, then in a solution of "sulphurous acid" for twelve hours, and afterwards again in a weak solution of the "chloridric acid." "After it has been in " action several hours, draw it off, then wash the jute, and pour in " a solution of chloride of lime; wash the jute anew, then pour in " another solution of chloridric acid, chloride of lime, and sulphur- " ous acid, and repeat these operations until the jute is perfectly " bleached."

[Printed, 3*d*. See Repertory of Arts, vol. 8 (*enlarged series*), p. 239; Patent Journal, vol. 1, p. 276.]

A.D. 1846, March 11.—N° 11,132.

ROBINSON, Charles Robert, and BOWDEN, Thomas.— " Improvements in machinery for washing and cleansing cotton, " linen, or woollen fabrics." This invention "consists of modes

" of combining machinery used in washing and cleansing cotton, " linen, and woollen fabrics, so as to bring into action certain " beaters, and also, combined with such beaters, jets of water."

The washing machine described first consists, generally, of a cistern, in which is a roller, and over which is placed a revolving roller or bowl. The fabric to be washed is caused to pass over and under these rollers, guided by means of pegs, in a spiral direction, from one end of the cistern to the other.

The first beater is a square revolving wince, placed over the cistern and under the top bowl. It is caused to revolve at a high speed, and to beat with its angles the fabric, and move it to and fro in the water as it rises out of the cistern, on one side, and again on the other side, as it descends. The second beater " consists of a " revolving axis, having several [flexible] beaters affixed thereto, " which may be of strong canvas or other strong material, thick- " ened at the outer edges, which may be covered at the beating " edges with what is called vulcanized india-rubber." This beater may be placed near to the top bowl, and as it is made also to revolve at a high speed the flexible beaters are thereby caused to strike on the fabric as it passes round the bowl. Jets of clean water may be thrown against the fabric at the place, on each side, where the first beater strikes.

The Patentees also describe an apparatus " where a cistern with " liquor for raising the color of the fabric is worked in combination " with a series of apparatus, according to our invention for wash- " ing the fabric." In this case the pieces are caused to pass in an open state through a vessel having many rollers, and containing the liquid to act on the colour, and then to proceed through a series of the washing machines, each provided with the beaters and spirts of water. Another modification of apparatus is described, whereby the pieces may be conveniently dunged and washed in a continuous manner.

[Printed, 1*s*. 10*d*. See Repertory of Arts, vol. 8 (*enlarged series*), p. 374.]

A.D. 1846, March 25.—N° 11,139.

ROBINSON, Charles Robert.—" Certain improvements in " machinery for tiering in the printing of calicoes and other " fabrics."

" First is the mode of combining machinery, whereby a brush " and doctor are made to move over a sieve surface and tier colour

" thereon, whenever the printer may desire it." The tiering brush is fixed on a carriage, which is caused to traverse over the surface of the sieve by a lever, which is worked by the operative's foot or by machinery, and pulled back again by a spring of vulcanized india-rubber or a weight. The brush is supplied with colour by being brought in contact with the surface of a furnishing roller that revolves in the colour box by means of the vulcanized spring, which passes round a pulley on its end. A doctor traverses also with the brush.

"Secondly, the mode of combining machinery, whereby a sieve " surface is made to move to and fro, so as to have color tiered " thereon whenever the printer may desire it." The sieve surface, in this case, is caused to move backward, when it is supplied with a coating of colour by the usual means of a furnishing roller, working in a colour box, and again to move forward on to the sieve or swimming tub, when the operator supplies his block with colour. This to-and fro motion of the sieve cloth is given by a treadle motion and pulley, and by the reversing action of the vulcanized spring, or by power as described in the specification.

[Printed, 1*s*. 8*d*.]

A.D. 1846, March 25.—Nº 11,147.

PARKES, Alexander.—"Improvements in the preparation of " certain vegetable and animal substances, and in certain combina- " tions of the same substances alone or with other substances." " This invention relates to preparing the vegetable matters called " caoutchouc and gutta percha separately and when combined, " and also when these matters or either of them are or is com- " bined with other matters."

The Patentee purposes to ornament articles manufactured from " caoutchouc and gutta percha, or combinations of these sub- " stances" "by painting or printing by means of engraved plates, " rollers, or otherwise, any pattern or device, having first given " them a coloured ground by any of the means hereinafter de- " scribed; or I mix several colours with these substances or com- " pounds, either in the dry state or in a state of solution, and " intermingle them so as to exhibit a kind of marbling effect, " and I afterwards produce the 'change' by either of the modes " before described (in the specification)."

" To dye caoutchouc or gutta percha or their compounds black " I boil the same from a quarter of an hour to half an hour in the " following preparation ; I take one pound of sulphate of copper " dissolved in one gallon of water, one pound caustic ammonia " or muriate of ammonia, or I take and boil one pound of sulphate " or bisulphate of potash and half a pound of sulphate of copper " with one gallon of water." To dye green " muriate of ammo- " nia," " sulphate of copper," " caustic lime," and " water " are " used. To dye a purple tinge " sulphate or bisulphate of potash," " sulphate of copper," and " sulphate of indigo " are employed. For other colours different substances are employed but not claimed by the Patentee. The colouring processes precede those for the change. The specification gives details for preparing and altering caoutchouc and gutta percha, and for producing what is called the " change," &c.

September 9, 1846.—The Patentee disclaims that part of the title which is contained in the following words, " and animal."

[Printed, 5*d*. See Repertory of Arts, vol. 9 (*enlarged series*), p. 46; Mechanics' Magazine, vol. 45, p. 400; Patent Journal, vol. 1, p. 342.]

A.D. 1846, April 1.—N° 11,157.

POTTER, HAROLD.—" Improvements in printing or staining of " paper." This invention consists " in the mode of supplying sur- " face rollers used for printing or staining paper with colors by an " endless sieve surface." The endless blanket or sieve cloth, which " is caused to move at the same surface speed as the printing roller, " is supported by rollers as shown." " Various colors are put " on to the endless sieve cloth by a hand block ; this block has " several rows of studs or projections, which enter into the colour " trough, which in the case shown is divided into seven compart- " ments into which different colours may be placed." " The " colour so placed on will be spread by the bar covered with " woollen cloth which is kept pressed slightly against the endless " sieve surface, and any excess of colour will be scraped off by the " doctor."

[Printed, 6*d*. See Repertory of Arts, vol. 8 (*enlarged series*), p. 200; London Journal (*Newton's*), vol. 29 (*conjoined series*), p. 415; Patent Journal, vol. 1, p. 325; Engineers' and Architects' Journal, vol. 9, p. 356.]

A.D. 1846, May 2.—N° 11,190.

MERCER, JOHN.—" Improvements in scouring and clearing " wool and woollen fabrics, also in bleaching and clearing silk,

" cotton, and linen and other fabrics." This invention consists " in the use and application of the various phosphates of potash, " of soda, or of ammonia, and also the arseniates of potash, of " soda, and of ammonia, to be used either alone or in addition to " the usually employed substances used in scouring, bleaching " and cleansing of woollen, cottons, silk, and other fabrics."

[Printed, 3*d*. See London Journal (*Newton's*), vol. 29 (*conjoined series*), p. 336; Patent Jouonal, vol. 1, p. 421.]

A.D. 1846, May 12.—N° 11,202.

SIEVIER, Robert William.—" Improvements in printing," " first, a mode of making a block in separate pieces, so as to " give to the face of such block any pattern that its arrangement " may be capable of." The pattern is on separate types which are fastened by pegs and springs into holes in the block, which consists of a piece of wood or metal of the desired thickness and shape.

"The second part of this invention is a mode of arranging a " block from a series of small pieces, and a method of colouring " such block for printing," and consists in suspending over a printing table a number of blocks in a row, each block having its particular part of the pattern, and to print its separate colour. It is stated that these blocks can be elevated by the jacquard apparatus, and depressed by springs, with sufficient regularity to admit of their being first separately supplied with colour and then of their being impressed simultaneously on the fabric. The colours are supplied by furnishing rollers working in colour boxes which are moved in at proper times under the blocks.

Thirdly, consists in a frame filled with small types or blocks arranged as a flat surface, upon which the pattern is drawn or painted. "The frame is then put upon its side, and all the " colours, excepting one, say the red, is pushed backward about " one eighth of an inch or more," and from this a cast may be taken in any suitable material, to form a block for printing. The other colours are similarly treated in succession.

Fourthly, is the "combining type being ornamental, or other " devices or letters sunk therein, so as to take a casting or block " thereupon suitable for printing," which is performed in the usual manner.

[Printed, 1*s*. 3*d*. See Repertory of Arts, vol. 9 (*enlarged series*), p. 4; Patent Journal, vol. 2, p. 460.]

A.D. 1846, May 15.—N° 11,208.

HANCOCK, Charles.—" Improvements in the manufacture of " gutta percha, and its applications, alone and in combination " with other substances."

This invention relates chiefly to the cleansing, preparing, and moulding of gutta percha. (See Abridgments on Gutta Percha and Caoutchouc.) Among the numerous applications of gutta percha pointed out by the Patentee is its application to the making of " printers' blocks " to be used in printing, as well as its application to making " rollers."

[Printed, 6*d*. See Mechanics' Magazine, vol. 46, pp. 280 and 295; Patent Journal, vol. 2, p. 447.]

A.D. 1846, June 22.—N° 11,250.

WOODCROFT, Bennet.—" An improved mode of printing " certain colours on calico and other fabrics." "The nature of " this invention, which relates to the printing with deoxidized " indigo, consists in the application of an improved gas apparatus to a calico printing machine, which apparatus contains " the artificial atmosphere or gas deprived of or devoid of free " oxygen, with which the whole room has heretofore been filled " in which the operations have been carried on, and which apparatus is made to deliver or distribute the said gas on the " colour used and on the fabric (whilst it is being printed with " deoxidized indigo to produce a blue colour, or with deoxidized indigo combined with other materials, to produce other " colours), wherever it is desirable to displace the atmospheric " air, or prevent its injurious action on the colour or on the " fabric, without involving the necessity of placing the printing " machine, the fabric to be printed, the printing materials, and " the workmen in a room or chamber filled with the artificial " air or gas as heretofore practised."

[Printed, 10*d*. See Repertory of Arts, vol. 9 (*enlarged series*), p. 196.]

A.D. 1846, June 22.—N° 11,252.

MERCER, John, and GREENWOOD, John.—" Improvements " in dyeing and printing Turkey red and other colours." The first part of this invention consists in "the preparing for and

" applying such oils (olive or other vegetable oils) to cotton " goods or fabrics in the process of dyeing and printing Turkey " red." The "sulphated oil A" is prepared by mixing and stirring frequently during ten days one measure of sulphuric acid of commerce with eight measures of olive oil. "We then add three " or four gallons of water and stir the mixture well, adding three " or four pounds of common salt, then allow the whole to stand, " and the oil will separate and may be drawn off as clear oil." " Sulphated oxidised oil" is prepared by adding to each gallon of the above sulphated oil A nine gallons of chloride of soda (prepared as specified). The mixture is heated and boiled until it ceases to bleach a portion of cotton dyed a pale blue colour by indigo; or in place of applying heat we add gradually sulphuric acid diluted with twenty-four waters until the mixture no longer bleaches the blue-dyed cotton; or, we treat the same sulphated oil A, mixed with an equal bulk of water with atmospheric air heated to 220° F. and steam; the air being forced through the oil or otherwise continuously for ten days. The process may be quickened by the addition of cow dung, bran water, linseed oil, sulphate of copper, and salt. Sulphated oxidized oil, may also be made through the agency of chlorate, or bichromate of potash, or nitrate of soda or potash, as described in the specification, instead of chloride of soda. "Oxidized oil" is common oil not "sul " phated," but treated in the same manner as in preparing by oxidation, the sulphated oxidized oil.

" Having prepared the oils as above explained, they are to be " used when dyeing and printing Turkey red, and for this purpose " we take two quarts of the 'sulphated oxidized oil,' and two " quarts of 'oxidized oil,' and to these we add twelve gallons of " pearl ash liquor of two degrees of Twaddle's hydrometer." The goods are then impregnated with this liquor after the manner of the Turkey red process.

Secondly, "relates to improvements in applying oil to goods or " fabrics, to be afterwards oxidized for the processes of dyeing " and printing Turkey red." Take one pint of carbonate and caustic potash or soda in equal parts and heat the same till the watery vapors cease to be evolved; to this we add two gallons of olive oil, and heat the mixture to about 300° F., and keep the " same so heated until the oil has dissolved all the potash, the " watery vapours and carbonic acid being first driven off." "The

" mixture is then allowed to cool below 200° F.; we then mix two " gallons of water therewith. This preparation of oil is to be " applied to goods or fabrics and oxidizes in the ordinary manner, " as are well understood; but we prefer the oxidizing process to " be carried on according to either of the processes hereafter " described."

Thirdly, " relates to a mode of oxidizing goods or fabrics which " have been oiled according to the means heretofore practised, or " when prepared with oil according to the means described as the " second part of our invention." " We hang or suspend the " goods in a chamber which can be closed, and into this chamber " we cause an oxidizing vapour to pervade, and for which purpose " we take one gallon of solution of chloride of lime of 9° T. for " every pint of oil in the goods, and to this solution we add five " ounces of muriate of ammonia dissolved in a pint of boiling " water; we place these matters in a suitable close vessel with a " suitable pipe into the chamber and heat it to 150° F.; the vapours " will flow into the chamber and oxidize the goods. Another mode " of oxidizing the oil on goods is by atmospheric air and steam For this purpose we prefer to employ perforated cylinders or rollers, such as those used by calico printers, and the goods (eight or ten pieces thereof) are to be wound around such rollers or cylinders, and then by a fan or other blowing apparatus we cause air, heated to 160° F. or 200° F., " to pass into the interior of such rollers or " cylinders and through the goods thereon, and we keep up such " flow of heated air for ten minutes, then apply steam to the interior of the rollers for ten minutes, then heated air, and so on " for two hours." The goods so oxidized are then to be impregnated with pearlash liquor as before. This process may also be applied to oxidate colours, such as are called steam colours in cotton and silk printing.

Fourthly, is for preparing a mordant consisting of one gallon of either of the oils above described, two gallons red liquor at 18° T. and one quart of pearlash liquor at 64° T., to which is afterwards added one quart of oil of turpentine. The goods being printed with this mordant are aged three days, then dunged in a mixture of dung, sumac valonica or guercitron bark in the usual way; they are then to be washed, dyed with guercitron bark, crofted for three days, dried at 100° F., and dyed with madder and bark, then cleaned after the manner of Turkey red, but without alkali in the soap, and finally brightened in a mixture of soap and tin in the usual manner.

Fifthly, "we claim the application of silica in the process of "dyeing and printing." We take one gallon of silicate of potash made in the usual manner at 12° T., half a pint of sulphuric acid at 68° T., mixed with one and a half pints of acetic acid at 8° or 9° T. The goods are prepared by running them through this liquor, drying them, and then passing them through a liquor composed of three or four ounces of muriate of ammonia to each gallon of water. When washed in water and dried the goods are ready for the mordant.

[Printed, 4*d*. See Repertory of Arts, vol. 9 (*enlarged series*), p. 158; Patent Journal, vol. 2, pp. 590 and 610.]

A.D. 1846, July 23.—N° 11,313.

FOURDRINIER, GEORGE HENRY.—"Improvements in pre- "paring the materials used in manufacturing earthenware and "china, and in printing the designs for ornamenting the same." The Patentee claims, "first, the employment of apparatus for "straining the earthy matters of which china or earthenware is "composed." The straining surface being made of bars or strips of metal, or perforated metal, or other suitable material; or of lawn silk, or other suitable textile fabric, supported beneath by a frame or perforated plate. "And also the exclusive right to form "a vacuum under straining surfaces employed for the purposes "above-mentioned."

"Second, I claim an arrangement for printing the ornamental "patterns or designs for earthenware, whereby the operation is "much facilitated." "The stationary bed or box of the print- "ing machine, on which the plate from which the impressions are "to be taken is placed, and may be firmly secured by clamps and "screws; being made hollow, it may be heated by the introduc- "tion of steam, hot air, or hot water." "The travelling frame "carries the pressing roller, on the axle of which is a handle or "lever for the purpose of actuating the roller and frame; and "when by depressing the lever, the frame, carriage, and roller are "made to advance, (as shown in the drawing), the pressing roller "is made to pass over and press the copper plate (which has been "previously charged with colour), and a sheet of paper placed "thereon." "The backstone or colour-box consists of a plate of

" iron or metal, fixed on a metal box, which is supplied with
" steam, hot air, or hot water." "The 'boss board' consists of
" a plate of copper or other metal placed on a horsehair or other
bad conductor of heat, whereby it is always kept cool."

[Printed, 7*d*. See London Journal (*Newton's*), vol. 31 (*conjoined series*), p. 251.]

A.D. 1846, September 3.—N° 11,367.

SENIOR, George.—"Improvements in washing, cleansing, "scouring, and bleaching silk, cotton, wool, and other fibrous "substances generally; also in dyeing, combing, carding, "spinning, felting, milling, or otherwise treating or preparing "fibrous substances generally."

These improvements consist, "firstly, in the use of rice water in "the washing, cleansing, scouring, and bleaching of wool." "Secondly, in the use of lime in the washing, cleansing, scouring, "and bleaching of wool, whether the said rice water and lime be "used in the manner herein-before described, or in any other "manner." The Patentee prepares "rice water" by boiling for about an hour a mixture of "five pounds of yellow East India "rice ground to a fine powder, and one pound of carbonate of "soda," "with sixteen gallons of water." The liquor is strained, and should be used within three or four days after it has been prepared. "In washing, cleansing, scouring, and bleaching wool "according to my invention, I first steep the said wool in a bath "of the following composition, namely, from one to two pounds "of carbonate of soda, two or three quarts of rice water, and "eighteen gallons of water (the quantities should vary according "to the condition of the wool as to cleanliness), heated to a tem-"perature of from sixty degrees to seventy degrees of Fahrenheit's "thermometer." The wool may be immersed in this bath for five or ten minutes, then "dried" by being passed between rollers. It is then immersed for 10 or 15 minutes in the following solution, namely, "two quarts of rice water, and one pound of carbonate "of soda to sixteen gallons of water," at about 60° F., and is again dried as above. "When the wool to be washed and cleansed "is of that kind known as 'greased wool,' I submit it to the "action of the following bath before subjecting it to the treatment "herein-before described, namely, one pound of slacked quick-"lime, and eighteen gallons of water, heated to a temperature of

" 60° or 70° degrees F." "The wool is steeped in this bath for a " period of about ten minutes, and after removed, is dried by " pressure between rollers in the usual manner."

By Disclaimer, dated 1847, March 1, the Patentee disclaims that part of this invention included under the following words contained in the title, " Silk, cotton, and other fibrous substances generally, " also in dyeing, combing, carding, spinning, felting, milling, or " otherwise treating or preparing fibrous substances generally."

[Printed, 4*d*. See London Journal (*Newton's*), vol. 30 (*conjoined series*), p. 200.]

A.D. 1846, October 15.—N° 11,417.

DONKIN, JOHN.—" Improvements in the manufacture of paper, " or in the machinery employed therein, and in the process of " bleaching paper, linen, and other manufactures in which chloride " of lime is employed." By disclaimer dated 1847, March 22nd, the title of this patent is altered to " Improvements in the manufacture of paper, and in the process of bleaching linen and other " manufactures in which chloride of lime is employed." This invention consists in " the application of bisulphite of soda in solution, to paper, pulp, linen, and other articles or materials which " have been bleached by means of chloride of lime, so as to " decompose and get rid of the chloride of lime which may be remaining mixed therewith or attached thereto." In practice the Patentee has found that " about a pound of the saturated solution " of bisulphate of soda is sufficient for decomposing the chloride " of lime in the pulp obtained from a hundred weight of rags, " when the pulp has been well drained or pressed."

[Printed, 4*d*.]

A.D. 1846, December 15.—N° 11,495.

BINGLEY, MARK.—" Improvements in book binding and in " weaving materials used in book binding; applicable also to other " weavings; and in preparing for and making alphabets for " accounts and other books, and in inking type therefor, and other " purposes; and in preparing sprinkled, granulated, or mottled " paper for bookbinders and others, applicable also to the edges of " books, and in graining or chequering Russia and other leather." These improvements consist, first, in applying metal strips or plates to form the back and the sides or lids of books, or partly of wood and partly of metal. Secondly, in weaving cloth to be applied to the backs of books, so that a head band may be woven into it, and thereby superseding the working in of the head band by the hand or otherwise. To effect this the Patentee finds it advantageous to use shuttles with springs applied of vulcanized india-rubber. Thirdly, relates to a mode of inking type set up in printing presses, by means of furnishing rollers, which are actuated separately from the mechanical operation of working the press. Fourthly, relates to an apparatus for "sprinkling, granulating, and mottling," and consists in causing a revolving brush to work against the surface of a colour feeding roller, and to throw the colour on to the edges of the book. The quantity of colour so thrown may be regulated by a plate pressing on the surface of the brush.

[Printed, 2*s*. 8*d*.]

A.D. 1846, December 21.—N° 11,502.

GONIN, Louis Sylvain.—" Improvements in printing stuffs, " papers, and other materials." This invention of " certain arrangements of apparatus to be employed when printing by " hand " consists " of guides for the workman for laying on the " block to the fabric," and " in the system of keeping the fabric to " be printed at a continuous tension." The guide consists of a rule (or bar) or a frame, laid across the printing table on which the piece to be printed is placed. The rule contains holes and stops adapted to the scale of pattern, and the printing block employed has guide pins attached to it. The workman, in pitching his block, has only to put the pins into the proper holes in the rule, when perfect registration will be insured. The proper tension and progress of the piece is effected by causing the piece to pass round suitably weighted rollers, and then over the printing table. At the further end of the table is placed the winding up roller, to which is attached a ratchet wheel and clicks, whereby the exact amount of progress of the piece may be regulated.

[Printed, 9*d*. See Repertory of Arts, vol. 10 (*enlarged series*), p. 21; London Journal (*Newton's*), vol. 30 (*conjoined series*), p. 430; Patent Journal, vol. 3, p. 176.]

A.D. 1846, December 21.—N° 11,505.

APPLEGATH, Augustus.—" Improvements in machines for " printing paper and other fabrics." These improvements relate to machinery and apparatus for the rapid printing of paper. (See Abridgments for Letter-press Printing.) The "claims" of the Patentee are as follows:—First, "the vertical position of the type "(whether its surface is composed of tangential planes or circular), "the vertical position of the distributing table, ink boxes, inking "rollers, and impressing cylinders." Second, "the combination "of rollers and tapes, which give the lateral motion to the sheets "of paper." Third, "the feeding by vertical rolls of paper or "other fabrics." Fourth, "the chase, or type holder, having "tension rules or bars, whether they serve for column rules, as "herein shown, or whether such tension rules or bars are lower "than the surface of type, and act only as abutments or keys for "it." This type holder is claimed, fifthly, when used "in a horizontal position," as well as when in the vertical position. Lastly, "the combination of apparatus for damping and stamping rolls of "paper."

[Printed, 4*s*. 9*d*. See Practical Mechanics' Journal, vol. 1, p. 248; Artizan' vol. 7, p. 265; Patent Journal, vol. 3, p. 150.]

A.D. 1846, December 21.—N° 11,512.

MYERS, George David, COOPER, William, WANSBROUGH, James.—"Improvements in the manufacture of caps, "bonnets, book covers, curtains, and hangings, show cards or boards, "labels, theatrical decorations, and coffins." These improvements consist in applying flock to the surfaces of such articles, by the ordinary means of applying flock to such surfaces, and in the use of such articles so ornamented. One or both sides of said articles, when desired, may be flocked and of different colours. The adhesive matter may be applied by means of blocks or otherwise.

[Printed, 4*d*. See Repertory of Arts, vol. 10 (*enlarged series*), p. 249; London Journal (*Newton's*), vol. 31 (*conjoined series*), p. 205; Patent Journal, vol. 3, p. 149.]

A.D. 1847, January 26.—N° 11,544.

KURTZ, Clemence Augustus.—"A new manufacture of a "certain coloring matter to be used in the dyeing or in the printing of woollen, cotton, silk, and other fabrics." "In a vessel or "boiler of one hundred gallons capacity are put ten gallons of "water and one hundred and thirty-two pounds weight of aloes, "as imported (or extract of logwood), and heated together till the

" aloes are dissolved. Eighty pounds of nitric or nitrous acid is " then added in small portions at a time." " When the disengage- " ment of gas has ceased, ten pounds of liquid caustic soda or " potash of commerce of about thirty degrees is added." If it be wished to have the colouring matter in a dry state, add one hundred pounds weight of china clay, and dry the mixture in the air or in a stove. "The colouring matter is used in dyeing " by dissolving (and boiling) a sufficient quantity, according to the " shade required, in a vessel of water, adding a sufficient quantity " of hydrochloric acid or of tartar of commerce, to neutralize the " alkali contained in the mixture, and to leave the dye bath " slightly acidulated." The colouring matter may also be used as a "steam color," in the ordinary manner.

[Printed, 3*d*. See London Journal (*Newton's*), vol. 31 (*conjoined series*), p. 37; Patent Journal, vol. 3, p. 213.]

A.D. 1847, February 10.—N° 11,575.

HANCOCK, Charles.—" Improvements in the preparation of " gutta percha, and in the application thereof, alone and in com- " bination with other materials, to manufacturing purposes, which " improvements are also applicable to other substances." This invention relates to improvements in the manufacture of gutta percha, india-rubber, and jintawan. (See Abridgments on Gutta Percha and India-rubber.) Among the gutta-percha and caoutchouc articles which may be most improved in quality and appearance by these processes are " printers' blanketting, covers for rollers " employed in pressing and finishing soft goods, washers, &c., &c.,

" Gutta percha, caoutchouc, or jintawan, after it has been sul- " phuretted or metallo-thionised by any of the processes described " in the specification, may be mixed with colouring matters, and applied, " by blocks, cylinders, or rollers, in the usual way of floor " cloth printing."

[Printed, 1*s*. 10*d*. See Repertory of Arts, vol. 10 (*enlarged series*), p. 203; London Journal (*Newton's*), vol. 34 (*conjoined series*), p. 96; Mechanics' Magazine, vol. 47, p. 157.]

A.D. 1847, March 29.—N° 11,643.

MORTON, Alexander.—" Improvements in printing warps." " They consist first, in so arranging apparatus that several suc- " ceeding threads of the same warp may have the colours applied " thereon for producing a regular pattern when woven by plain

" weaving into a fabric." "The apparatus used for winding on " the warp threads consists of several planks suitable for being " placed on a common axis, and retained together when on the " axis by bolts. The ends of the planks are capable of sliding " off, the object of which is conveniently to remove the warp " thread from a plank, without unwinding it therefrom;" on each plank a warp thread is wound with the threads laying side by side. The printing apparatus given is "suitably arranged for " acting on ten succeeding threads of a warp." "The ten planks " having wound thereon the succeeding threads, are placed into " frames, by which they will be held in a proper manner to have " colour applied at their ends and sides." "The colour carriage " has as many compartments or color troughs as it is desired to " employ." "The carriage is mounted on wheels, so that it may " be capable of traversing along a line of railway laid across the " [printing] machine." "In each of the color compartments " there is a roller provided with doctors or scrapers, of a width " Suitable for laying on the color to the threads of the warp. " suitable mechanical means are employed to move the color " troughs and rollers under and in contact with the threads. " The yarns of the warp thus printed are removed from the planks " by sliding off the ends thereof, then steamed, washed, beamed, " and woven as heretofore practised."

"Secondly, the better arrangement of apparatus for printing " several warp threads at the same time, with the same colours at " the same intervals, so as to produce like results as when work- " ing according to the invention for which Letters Patent were " granted to Mr. Whytock." "This apparatus is for the most " part similar to that shown and described; the difference being, " that in this case only one plank is used, capable of receiving " several warp threads each to be similarly printed. The plank is " supported on a frame, and the frame is supported on grooved " wheels, which travel on V guides to and fro across the machine " by means of straps." The rollers which revolve in the (color) troughs, when brought in contact with warps, are each affixed to an axis which turns in arms affixed to a spindle; and it is by the raising of these color rollers that color is given off to the warps; and the order in which the different color rollers are raised, so as to give color off to "the warps, is controlled by suitable pins " placed in the bars; there being bent levers (one to each of the " color troughs), one end of each of which comes under a pro-

" jection from one of the arms, and the other arm of which is " capable of resting on a pin, and when so resting, of sustaining " its color roller in a position to impart color to the warp."

[Printed 3*s.* 1*d.* See Patent Journal, vol. 3, p. 504.]

A.D. 1847, April 27.—N° 11,678.

COATES, John.—This invention consists in the application to the surface of woven fabrics previous to their being printed, of a " revolving cylinder or roller covered with wire cards (such as is " used in the carding of cotton) either employed in connection " with a stationary brush or without it, for the purpose of re- " moving loose fibres or other extraneous matter." The cloth is caused to pass " under a tension rail, and thence over a stationary " brush which has a 'doctor' or steel blade extending along one " side. The cloth then passes over the wire card cylinder or " roller, and over the tension roller, to the printing apparatus." The wire card cylinder or roller is caused, by means of a spur pinion, to revolve in the reverse direction of the cloth.

[Printed, 6*d.* See London Journal (*Newton's*), vol. 33 (*conjoined series*), p. 346.]

A.D. 1847, May 24.—No. 11,714.

LE LIEVRE, Henry.—" Improvements in dyeing and " stretching silk and in finishing plush." These improvements in dyeing silk " hat black" consist in substituting " alder bark" for " oak bark;" and in substituting " like quantities of fustic " and citron bark in place of using all fustic." And, also, in substituting " the finest olive oil soap," for " mottled soap " in the " latter " with " logwood." Secondly, " in conducting the pro- " cess of stretching silk so dyed hat black to an atmosphere of " steam, in place of doing it in the ordinary atmosphere as here- " tofore, and for this purpose I employ a perforated tube [through " which steam issues] close under where the process of stretching " is being performed."

" Disclaimer," " Nov. 24, 1847."

"That part of the invention which was intended to have been " specified under the words 'and in finishing plush' is 'dis- " 'claimed.' "

[Printed, 3*d.* See Repertory of Arts, vol. 11 (*enlarged series*), p. 112; London Journal (*Newton's*), vol. 31 (*conjoined series*), p. 429; Patent Journal, vol. 4, p. 80.]

A.D. 1847, May 29.—N° 11,724.

BROOMAN, Richard Archibald.—(A communication.)—"Improvements in the process and machinery employed in scouring "and bleaching." The Patentee claims, "first, the scouring and "bleaching of linen by putting the same without any previous "soaking in a copper, where it is first saturated with bleaching "liquid, and then steamed by means of steam introduced "from a boiler separate and distinct from the said coppers." "Second, the connecting of the said copper with the boiler and "fire-place in such manner (whether temporarily or permanently) "that the foul water in the boiler is prevented from boiling up "and intermixing with the linen in the copper, and only the "clean water arising from the condensation of the steam is allowed "to circulate amongst the linen." To carry out this principle a vessel or keir made of suitable materials, and provided with a lid, may be placed over a boiler with a fire-place underneath. The keir is connected to the boiler by means of a pipe having a valve in it. The linen to be bleached is placed on the false bottom of the keir and there soaked in the required liquor; any excess of liquor being drawn off by another pipe. The valve in the connecting pipe is then opened and the steam from the boiler beneath is allowed to percolate up through the linen, and the condensed water and foul liquor to trickle back into the boiler. The Patentee gives drawings of several modifications of apparatus in application to heating baths, as well as for bleaching.

[Printed, 1*s.* 1*d.* See Mechanics' Magazine, vol. 47, p. 563.]

A.D. 1847, August 19.—N° 11,844.

BOURA, AIMÉ.—"Improvements in extracting colouring "matter," consist "in a vessel so constructed that it may be "closed steam tight, and allow of matters from which color is to "be extracted being, when combined with water, boiled by the "action of free steam, and it is so hung on hollow trunions or axes "as to allow of the mouth of the vessel being turned downwards "to discharge the spent matter from which color has been extracted." The steam pipe which admits the steam is connected with a hollow axis, and descends to the lower part of the vessel, and is there made into a flat coil perforated with holes. There is a pipe attached to the other axis by which water may be introduced, and a false bottom or partition of fine woven wire cloth, on which the matter to be operated on rests. The cover of the vessel is securely fixed by means of a screw and bridge, and in it is a small vent hole. The vessel may be discharged of its liquid contents by the pressure of the steam through a pipe with stop cock, or wholly emptied by reversing the vessel on its axis.

[Printed, 8*d*. See Repertory of Arts, vol. 11 (*enlarged series*), p. 219; London Journal (*Newton's*), vol. 32 (*conjoined series*), p. 170; Mechanics' Magazine, vol. 48, p. 211; Patent Journal, vol. 4, p. 325.]

A.D. 1847, September 2.—N° 11,848.

OXLAND, Robert.—" Improvements in dyeing, certain parts " of which improvements are applicable to the manufacture of " metallic alloys."

" These improvements consist (first) in preparing and applying " the tungstate of soda as a substitute for the various preparations " of tin usually employed as mordants in dyeing. This substance " may be used either alone or in combination with various acids, " according to the purposes for which it is required. When it is " required to be employed in combination with acids, it is neces- " sary that it should first be dissolved in a much larger quantity " of water than is merely necessary for its solution." " Wool, " either in skein or piece, may be dyed by either first boiling in " such solution" " in which nitromuriatic acid has been em- " ployed, and subsequently in the dye bath; or it may at once be " mixed with the dye, and the cloth boiled with the mixture " without any other previous preparation than the usual cleaning " with logwood as the dye; by such treatment as the foregoing, a " violet colour is produced, passing into claret, and, finally, if the " boiling be continued, into a black." "For the manufacture " of tungstate of soda, I employ wolfram, the native tungstate of " iron, and manganese; or the 'native tungstic acid.' " The tungstate of soda may be procured by roasting the ore with an equivalent of "common alkali or soda ash," " sulphate of soda or " salt cake." "The charge drawn from the furnace will consist " of the native oxide of tin, the soluble tungstate of soda, with " the oxides of iron and manganese, with a small proportion of " silica." These are separated by means of lixiviation and the soluble tungstate evaporated down till it crystallizes.

Second " consists in preparing metallic tungsten for the manu- " facture of its various alloys with other metals." This may be effected by mixing "tungstic acid" with a "coarse oil or tar, or "with charcoal, or coal in fine powder;" or from "tungstate "of soda" by mixing it with "charcoal dust or powdered coal" and submitting either mixture in a charcoal lined crucible to a strong red heat for about one hour. The carbonate of soda may be "separated by lixiviation, leaving metallic tungsten clean and "ready for use."

[Printed, 7*d.* See Repertory of Arts, vol. 11 (*enlarged series*), p. 238; London Journal (*Newton's*), vol. 32 (*conjoined series*), p. 192.]

A.D. 1847, October 7.—N° 11,883.

TAYLOR, Nathanial Fortescue.—"Improvements in "machinery for printing and staining paper and other fabrics."

"Consist, first, in the arrangement of an endless chain of plates "and means of giving motion thereto at intervals, and also the "employment of a long table carrying the paper or material to "be printed, and moved at intervals." The endless chain of plates consists of a series of flat surfaces attached to each other, forming a revolving surface for the impression to be made upon. These plates revolve over a fixed table and over a six-sided drum at each end of the table. The motion is given by a crank and connecting rod working against a rib on the back of each plate.

"Secondly, the mode of arranging a frame, whereby a block or "printing surface [or several acting in succession] may be moved "to and from a sieve and fabric." The block is fixed in a frame and has a lateral movement caused by cranks and connecting rods; it has likewise a perpendicular movement caused by the revolving of a heart shaped cam in a ring or hoop. The tiering brush is caused to move to and fro on the surface of the sieve by means of a crank and connecting rod. The connecting rod is forked so that the arms of the brush may work freely therein and parallel with the surface of the sieve. "When the sieve has had "color spread thereon, and by the working of the machine the "printing surface has come over the sieve, it is raised up towards "the printing surface; and this is done by means of a lever, which "turns on an axis, the other end of the lever being acted on by a "tappet."

"In place of having the bearing surfaces, whether an endless "chain or plates or a long table capable of movement, I can so "arrange apparatus that the paper only may be moved proper

" distances at intervals." The paper laid upon the table is held down by bars which may be lifted up by cams; the paper is then caused to progress by means of clamping instruments which are moved by cranks.

" Lastly, is the mode of constructing and working blocks or " surfaces." So much of the pattern as is to be printed with one colour, say green being formed on one end of the blocks, the yellow on the next part, and the other two colours on the other parts in succession, and keeping each separate. By moving the fabric forward the length of one of the colours four times in succession, and imprinting between each movement, the pattern will be completed.

[Printed, 4*s*. See Patent Journal, vol. 4, p. 521.]

A.D. 1847, November 2.—N° 11,938.

HANCOCK, THOMAS.—" Improvements in fabrics elasticated " by gutta percha, or any of the varieties of caoutchouc." These improvements consist in printing upon elastic, braided, woven, or other fabrics, whether of cotton, wool, silk, or other substances, elasticated by gutta percha, or any of the varieties of caoutchouc, manufactured in the dyed or undyed state, by means of any of the well known plans of printing in manufactured goods such as blocks or cylinders, or any suitable apparatus, and with the colours and processes ordinarily used in printing the various materials of which the exterior of the combined fabrics may be formed. These fabrics may be printed while contracted or partially distended.

[Printed, 3*d*. See Mechanics' Magazine, vol. 48, p. 452.]

A.D. 1847, December 10.—N° 11,993.

ROBERTSON, JOSEPH CLINTON.—(A communication.)—" Improvements in the preparation and application of colors suitable " for printing stuffs composed of silk or wool, or of a mixture of " silk and wool." These improvements consist, first, in the mode of preparing " colors from insoluble precipitates instead of soluble " extracts, which precipitates, notwithstanding their insolubility, " combine perfectly with the fabrics." "The precipitates which " may be obtained are numerous, but as they are all very similar " in effect, may suffice to specify those only which appear to be

" most susceptible of general use. To obtain a precipitate of cuba " wood (morus tinctoria), dissolve in water about one hundred " parts of chips, strain this solution through a silk cloth, and " then pour into it by little and little (stirring the mixture the " while), a solution of ten parts of deuto-chloride of tin dissolved " in twenty parts of water, and four parts of sulphuric acid of " sixty-six degrees. When the precipitate has been deposited, " draw off the superpatent liquid and wash it repeatedly with " fresh water till no trace of the acid remains. The precipitate " is then to be filtered and kept in a humid state till required for " use." Analogous precipitates are obtained from fustick by means of tin; from woad by means of sub-carbonate of soda and alum; from orchil by means of alum and sub-carbonate of soda; and from cochineal by means of protochloride of tin and chloride of tin. " By means of one or other of these precipitates, " and with the aid of the soluble blue or indigo vat (carmin " d'indigo) to be met with in commerce, all the shades of golden " yellow, of jonquil yellow, of violet, of Parma violet, of green, " and other composite or fashionable colors (couleurs de mode), " may be obtained. For example, green may be produced by " taking five pounds seven and a half ounces of the precipitate of " morus tinctoria, and dissolving therein, by heat, about one " pound nine ounces of gum senegal, about six ounces and a half " of alum, about two ounces of oxalic acid, then mixing all these " matters well together, and adding about five pounds seven and " a half ounces of an aqueous solution of gum senegal, and one " pound one and a half ounce of soluble blue or indigo vat " (carmin d'indigo), well levigated with an aqueous solution of " gum."

" Fabrics, printed by rollers, should be exposed to the steam " for from thirty-five to forty minutes, without having been previously dried, but after having been wound, as usual, on folds " of dry calico; fabrics printed by hand, with one or more colours " (a la perrotine), should be first regularly and properly dried, " and then damped again by rolling them on wet calico; after " this operation, the duration of which will vary according to the " nature of the fabric and the kind of printing, the goods should " be exposed to the steam for from thirty-five to fifty minutes."

[Printed, 4*d*. See Patent Journal, vol. 5, p. 134.]

A.D. 1847, December 30.—N° 12,007.

HANCOCK, Thomas, and PHILLIPS, Reuben.—"Improvements in the treating or manufacture of gutta percha, or any of the varieties of caoutchouc."

These improvements relate chiefly to a solution or solutions made by dissolving "vulcanized caoutchouc or gutta percha," in oil of turpentine, coal naptha, or other essential oils. This solution has numerous applications, among which is the mixing of it with coloring matters and application for colouring and printing leather, calico, and other fabric, and for walls and decorations. (See Abridgments, Gutta Percha and India-rubber.)

[Printed, 4*d.* See Mechanics' Magazine, vol. 49, p. 45; Patent Journal, vol. 5, p. 202.]

A.D. 1848, January 13.—N° 12,022.

MORSE, Sidney Edwards.—"Improvements in the manufacture of plates or surfaces for printing or embossing." A copper plate being covered with etching ground, and the pattern cut through by means of an etching needle or other suitable tool, "is immersed for a moment in a weak solution of pernitrate of mercury, formed by adding one part of the saturated solution to fifty or sixty parts of water; all the lines and marks of the writing or drawing on the copper will thus be covered with a thin film of mercury, which will prevent the too strong adhesion of the copper about to be deposited in them." The plate is then submitted to the electrotype process till the lines are filled up by deposited copper; it is then washed, and dipped again into the mercurial solution, and afterwards washed and dried. A piece of pasteboard is then cut out and laid upon the plate so as to form a ring or margin round the engraving, and on that a flat piece of wood; a corresponding rim of pasteboard and flat piece of wood being applied also to the back of the plate; an opening in both cases being left for the entry of the metal. "Bind these together in a vice or any other convenient way; take metal, composed of bismuth, tin, and lead, in such proportions that the alloy will melt at a temperature a little above that of boiling water, and heat it till it will turn white paper to a straw color; then fill with the melted metal, first the cavity at the back of the

" copper plate, for the purpose of heating the plate, and next the " cavity in front of the plate. When sufficiently cool take the " cast from the mould, and the deposited copper will be found " everywhere firmly united to the alloy and forming a surface, " which, on the removal of the intervening alloy to a sufficient " depth, will print every letter and line of the drawing which was " made in the etching ground." The alloy is removed from these parts by diluted nitric acid which acts only on the alloy. The oxide so formed is brushed away. Another mode of making printing surfaces consists in taking the plate heated after the copper has been deposited as above, washed and dried, and brushing over the etched part a thin coating of melted chloride of zinc. The plate is heated till the chloride of zinc sets, the heat is then withdrawn and the brushing continued until a fluid is revived on every part of the surface. The pasteboard rims and wood backs are then applied and a cast taken as before directed. " When " cool open the mould, and if the work has been properly done " a plate will be found with a surface of copper lines in the most " projecting parts, and between the copper lines cavities formed " in the process of casting by the accumulations of the chloride " of zinc and the evaporation of the water united with it."

[Printed, 4*d*. See London Journal (*Newton's*), vol. 34 (*conjoined series*), p. 257; Artizan, vol. 6, p. 250; Patent Journal, vol. 5, p. 235.]

A.D. 1848, January 19.—Nº 12,034.

ROBERTSON, Joseph Clinton.—(A communication.)—" Improvements in the manufacture of textile fabrics, stuffs, and " tissues, and of certain new products obtained by the aid of such " improvements." The Patentee claims " the manufacture of " imitation brocades by an improved mode of manufacture, " whereby surface printed goods may be made to rival or resemble " brocades in beauty of pattern or design." "The colours used " for this purpose are ground finer than colours are usually " ground, so that they may penetrate the fibres of the goods " thoroughly; they are then mixed with any of the thicker fatty " oils, in the proportion of about one-third part of the oil to " two-third parts of the coloring material, and great care also " is taken to make this mixture as intimate and complete as may " be. The colours so prepared are applied to the engraved sur- " faces by rollers in the usual way." "The plates (or printing

" surfaces) which will yield impressions of the required vivacity " are obtained by the following method:"—The designer draws his pattern upon a plate of thin copper (from No. 14 to No. 20 Birmingham sheet metal gauge); "the pattern is then cut through " and through in those parts covered with the lines of the designer; " and this done, the plate is attached, by soldering or rivetting, " to a foundation block, in order that it may be printed from."

[Printed, 3*d*. See London Journal (*Newton's*), vol. 33 (*conjoined series*), p. 118; Mechanics' Magazine, vol. 49, p. 93; Artizan, vol. 6, p. 249; Patent Journal, vol. 5, p. 235.]

A.D. 1848, April 3.—N° 12,107.

COATES, John.—" Improvements in machinery or apparatus " for printing calicoes and other surfaces," "which improvements " apply to that particular class or style of printing termed 'block " 'printing.'" In the drawings given there is a short printing table, over which the cloth to be printed is caused to pass, being guided by belts at each side. There are two sieve tables, one at each end of the printing table, and two blocks which are suspended by links from a vibrating frame (or lever), and guided by vertical slides which work in grooves formed in uprights. The vibrating frame is attached to slides by means of a rod upon which it vibrates as upon a centre. In working this machine the vibrating frame is pushed on its slides so far to one end that one of the blocks becomes perpendicular to one of the sieve surfaces. The block is then depressed to the sieve by elevating the other end of the frame, and is furnished with color. The frame is then pulled back till the block is perpendicular to the cloth to be printed, and by a similar movement of the frame it impresses the colour on the cloth. If two blocks be worked at the same time then the second block is attached to the swinging frame, so that it will come perpendicular to the second sieve surface at the same moment that the first block made its impression. The second block is then supplied with colour as the first was and the movement of the swinging frame reversed.

[Printed, 9*d*. See Artizan, vol. 7, p. 56; Patent Journal, vol. 6, p. 11.]

A.D. 1848, April 20.—N° 12,130.

COCHRAN, Mathew.—" Improvements in the production " of coloured patterns or designs on warps of carpets, velvets,

" or other textile materials, parts of which improvements are also " applicable to the production of coloured patterns or designs on " woven fabrics or other plane surfaces." These improvements consist in a machine for printing by means of impressing the color on the fabric by "impressions" worked by a Jacquard machine. "The impressers, pistons, or plungers are worked by a " cross beam fitted with grooves on its ends to slide vertically " upon feathers cast on the inner sides of the four pillars." "The " elevation and depression of the cross beam is accomplished by " means of a small chain pulley. Over this beam and also suspended " is a heavy cast iron cross beam." "The impressers are arranged " in rows corresponding to the colour boxes, each row containing a " number corresponding to the extent of the pattern, or what, in " harness weaving, is termed the number of cords in a tye." "A " series of slotted supporting brackets are cast on or attached to the " under surface of the cross beam, and each is slotted through at " equal distances, corresponding to the rows of impressers, and " through these slots are passed a series of thin metal bars, each " bar being in one piece across the whole breadth of the machine." These notches work into notches in another cross bar. "The " connection between the impressers and the pattern apparatus of " the Jacquard machine consists of a series of cords or wires, " connected by loops with the cords of the Jacquard, one being " attached to each impresser." "The colour apparatus consists " of a series of deep and narrow boxes corresponding to the num- " ber of colors intended to be used at once in the production of " the required pattern." A small guide pulley is fitted to revolve upon a stand at each end of the colour box near the bottom, and beneath these pulleys is passed a narrow elastic band attached at one end in the box and at the other to a part of the machine. This band is pulled, and causes a colour pad to pass over the surface of a narrow printing table (the sieve in ordinary machines) and supplies it with colour. The warp to be printed passes between the depressers and the coloured printing tables; the depressers bring the warp in contact with the tables and the impression is given by the descent of the heavy cast iron cross beam. In printing fabrics the depressers have the pattern cut on their lower surfaces, which may be supplied with colour by a colour sieve caused to slide under them and to withdraw at the proper moment.

[Printed, 1*s.* 1*d.* See Artizan, vol. 7, p. 82; Practical Mechanics' Journal, vol. 1, p. 41; Patent Journal, vol. 6, p. 47.]

A.D. 1848, May 30.—N° 12,167.

WOOD, William.—" Improvements in weaving carpets, and in " printing carpets and other fabrics." The first part of this invention consists of " adding in the weaving of carpets substance " or thickening, or, as it is technically termed " the dead " into " Brussels carpets, or carpets made with hollow looped surfaces, " and also cut pile carpets." " Secondly, in the mode of printing " such fabrics by employing cylinders or rollers so actuated and " controlled as to ensure (the application of) the colors being re- " peated on the same parts of the fabric." The carpet to be printed is laid at full length on a table, at the sides of which are fixed two rails upon which the carriage containing the printing rollers is caused to traverse from one end of the carpet to the other. The printing rollers are accompanied by colour troughs and furnishing rollers which supply them with colour; on the axis of the printing rollers are toothed wheels working into toothed racks fixed on the sides of the table, by which means the printing rollers in returning over the table will repeat their impressions exactly.

[Printed, 1*s.* 10*d.* See London Journal (*Newton's*), vol. 34 (*conjoined series*), p. 250; Mechanics' Magazine, vol. 49, p. 550; Practical Mechanics' Journal, vol. 1, p. 228; Artizan, vol. 7, p. 105; Patent Journal, vol. 6, p. 85.]

A.D. 1848, August 15.—N° 12,243.

DE LA RUE, Thomas.—" Improvements in producing or- " namental surfaces to paper and other substances." These improvements consist " in producing iridescent films on to the " surfaces of paper and other substances in order to produce " colours thereon known as the colors of thin plates, or New- " ton's rings." This may be effected by means of a " resinous " varnish " or other suitable varnish or fluid or semi-fluid body " capable of yielding a thin film of solid matter," being dropped on the surface of still water or other fluid. The article to be coated being immersed in the water, and under the film floating on the surface, is then gently raised out of it, when the film will adhere to its surface, and when dry will present the colours referred to.

[Printed, 4*d.* See Repertory of Arts, vol. 13 (*enlarged series*), p. 316; London Journal (*Newton's*), vol. 34 (*conjoined series*), p. 261; Mechanics' Magazine, vol. 50, p. 184; Practical Mechanics' Journal, vol. 2, p. 15; Artizan, vol. 7, p. 155; Patent Journal, vol. 6, p. 194.]

A.D. 1848, August 21.—N° 12,248.

TAYLOR, Isaac.—Improvements in preparing and engraving surfaces, also in the construction of cylinders adapted for engraving, and also in machinery for printing and ornamenting surfaces. This invention consists, first, in the introduction of several "rhomboidal frames in a continuous series, the first imparting "its movement to a second frame, or to a pair of such frames, "and these to a third or a third pair, and so on, if requisite, to a "fourth or more, as a substitute for the single rhomboidal frame "or pentagraph, for the purpose of obtaining a much higher power "of diminution." "The whole and each principal part of the "system of frames is so floated off from its bearings (by means of "steel yards, or by swinging arms, pulleys, and weights), whether "these be friction rollers, or smooth surfaces, as that only such a "residue of weight shall be left upon these bearings as is required for securing steadiness of horizontal movement through"out;" also in "placing rhomboidal frames in pairs, or, as it "might be said, back to back in contrary positions one to the "other, and yet so that the two take on to one and the same axis "of movement at the extremity of the longer bar. The pair "being so adjusted, a bar of some kind is carried across from "the working point of the one frame to that of the other," by which means a number of working points or tools are brought to operate simultaneously and in perfect unison upon one continuous surface, or upon several continuous surfaces; also in the introduction of a "simultaneous movement" whereby any figure or species of work "which is placed upon the tracing table, and "which is on a plane surface, should be produced by the working "points, not merely on one breadth of the roller or cylinder from "end to end, but on all sides of it, and as if its rotund surface "were spread out upon a flat surface." This may be effected by placing the roller upon blocks or sleepers attached to the connecting bar or yoke of the working pair of frames, by which means it is carried laterally or from side to side in obedience to the movement of the tracing point; and the rotatory and diagonal movement is given by causing the "mandril of the cylinder to work "freely and yet exactly at each end in sockets which themselves "are adjusted in the grooves of standards or brackets; hence when "the moving bar takes its direction longitudinally, or in any

" direction not precisely lateral, the cylinder receives a correspond-" ing rotatory movement equivalent in peripheral extent to the " longitudinal movement of the bar on which it rests." This machinery is available for a great variety of purposes including that of being used as a substitute for block printing; the working points are substituted by tubes and vessels containing colour which apply the colour to the fabric by the action of the swing carriage.

It consists also in the mode of adapting a "thin crust cylinder" " to the purposes of calico printing or similar purposes." The thin crust roller is sustained and kept firmly on the mandril by means of the segments placed between the mandril and the interior surface of the roller, which are driven home by a nut on the conical mandril. " Also of a ruling machine by means of which, " when applied to the tracing point on the tracing table, parallel " lines, either straight or waved, may be effected."

[Printed, 4s. See Mechanics' Magazine, vol. 50, p. 187; Artizan, vol. 7, p. 184; Patent Journal, vol. 6, p. 203.]

A.D. 1848, November 2.—N° 12,301.

JACOBS, Meyer.—" Improvements in the manufacture, stamp-" ing, and treatment generally of woven fabrics of all kinds." These improvements consist, firstly, in " the composition, mixture, " or combination of materials for the coating or moistening the " figures or designs cut or carved in the blocks used for printing " or stamping on muslin or other light woven fabrics." The composition used is made from " mordant," turpentine, boiled linseed oil, oil of cloves, and what is commonly called patent dryers, with sufficient color to obtain the shade required.

Secondly, the same as applied to the " printing or stamping the " trellislike fabrics usually denominated lace." The composition used in this case is similar to the above, only instead of adding boiled linseed oil, white varnish is used.

Thirdly, the same as applied to " woven fabrics of wool or other similar material." In this case the boiled linseed oil and white varnish are omitted from the composition, and spirit of salammoniac substituted.

" Fourthly, the composition, mixture, or combination of mate-" rials for manufacturing the fabric I denominate Utrecht cloth." This composition is the same as for muslins, with the addition of india-rubber.

"Fifthly, processes by which, in conjunction with the com- " position, together with flock or floss, raised surfaces or designs " are produced on woven fabrics, on both sides thereof, during one " operation," "also the process by which the material I deno- " minate Utrecht cloth is produced." The cloth or fabric being printed with one or other of the above compositions is introduced while moist into a case drum and covered with flock, which is agitated till it adheres to the printed parts. The Utrecht velvet is imitated by first slightly covering the surface of some fabric with composition, and then placing it in the flock drum case.

[Printed, 4*d*. See Patent Journal, vol. 7, p. 71.]

A.D. 1848, November 2.—N° 12,316.

PATTISON, Robert Thomson.—"An improved preparation " or material for fixing paint or pigment colours on cotton, linen, " woollen, silk, and other woven fabrics." This invention consists in "making or extracting from milk the particular preparation " or material which I have called lactarine, possessing the peculiar " power or inherent quality of fixing paint or pigment colours to " woven fabrics, and capable of being easily, effectively, and " beneficially applied for that purpose." Lactarine is the "curd" of milk, whether as buttermilk, sweet milk or skimmed milk, precipitated by heat, acids, or other means; it is dissolved in ammonia, and the gummy solution is used as a thickener in printing, and to fasten pigments on cloth.

[Printed, 4*d*. See Repertory of Arts, vol. 15 (*enlarged series*), p. 31; London Journal (*Newton's*), vol. 34 (*conjoined series*), p. 244; Mechanics' Magazine, vol. 50, p. 833; Patent Journal, vol. 7, p. 109; Engineers' and Architects' Journal, vol. 12, p. 180.]

A.D. 1848, November 23.—N° 12,340.

ARCHER, Henry.—"Improvements in facilitating the division " of sheets or pieces of paper, parchment, or other similar sub- " stances."

"This invention is to enable persons when using postage stamps, " tickets, or other small labels to separate one or more from a " sheet without the employment of a cutting instrument. This " improvement I effect by cutting or stamping around the margin of " every stamp, ticket, or label a consecutive series of holes or slits, " whereby the tearing up of the sheets of paper or parchment into "pieces of uniform size will be greatly facilitated, while there will "be sufficient adherence of the several stamps, tickets, or labels, "which are printed on one sheet of paper or parchment, to ensure "their retaining the form of a sheet until they are intentionally "separated for use." Any suitable mechanism may be employed for this purpose.

[Printed, 1*s*. See London Journal (*Newton's*), vol. 35 (*conjoined series*), p. 34; Mechanics' Magazine, vol. 50, p. 501; Practical Mechanics' Journal, vol. 5, p. 46; Patent Journal, vol. 7, p. 70.]

A.D. 1848, December 9.—N° 12,359.

YOUNG, JAMES.—"Improvements in the preparation of certain "materials used in dying and printing."

The Patentee claims, "first, the process for the preparation of "stannate of soda and stannate of potash, in so far as regards the "heating of the tin ore, reduced to powder along with caustic "soda or potash." The tin ore used is that commonly known in Cornwell by the name of "block tin," and the heat employed is from 500° to 600° F.

"Secondly, the process for preparing the above stannates, in so "far as regards the heating of tin ore reduced to powder along "with nitrate of soda or nitrate of potash, muriate of soda or "muriate of potash, and passing currents of steam over them."

Third, the obtaining of the above stannates from metallic tin combined with a hydrate of caustic soda or potash, or with a hydrate of caustic soda or potash and manganese. The tin and hydrate of caustic soda are heated to redness together. The resulting stannite by boiling in water becomes stannate; or tin, caustic soda, and oxide of manganese are heated together to redness in an open vessel.

"Fourth, the obtaining of stannite of soda and stannite of potash" as above.

"Fifth, the obtaining the above stannates from metallic tin "which has been oxidised" by being heated to redness in an iron vessel, well stirred, while passing a current of steam or air over it.

"Sixth, the preparation of stannate of lime, and other stannates "of alkaline earths" by replacing the soda or potash by means of lime, or alkaline earths.

"Seventh, the preparation of peroxide of tin" from stannates by adding carbonic acid, sulphuric acid, or bicarbonate of soda.

"Eighth, the preparation of oxymuriate of tin and other salts " of peroxide of tin by treatment of the peroxide of tin (obtained " in the way described), with acids."

"Ninth, the employment of tin slag, whenever it can be used " as a substitute for tin ore or metallic tin, in any of the processes " herein described."

[Printed, 4*d*. See Mechanics' Magazine, vol. 50, p. 568; Patent Journal, vol. 9, p. 44.]

A.D. 1848, December 11.—N° 12,366.

LEE, George Lawrence.—" Improvements in producing " ornamental designs." This invention consists, "first, in the " mode of obtaining ornamental designs or surfaces by employ" ing gelatine and glass, with opaque colours applied by printing " and painting; also, in the application of the process of quicking " to gelatine for the purpose of obtaining ornamental designs; " also the application of flock to gelatine to obtain ornamental " designs." The gelatine in sheets is dipped into a solution of naptha with a small quantity of spirit varnish or other suitable varnish, and printed on one or both sides with block, or type or other surfaces, or painted with hand, in oil or other colours, which may be flocked, or gilded with gold leaf or other metal, or bronze. In the latter case the sheet of gelatine is passed between a pair of smooth rollers, by which the metal will be planished. "The " ornamental surface thus obtained may be preserved by framing " it with plate glass in front." When the surface of the back of the sheet of gelatine is to be "quicked," "I apply the quicksilver " in the same manner as when silvering glass."

The Patentee also claims "the mode of manufacturing orna" mental designs in the form of letters and figures for shop fronts " and other surfaces;" "also the mode of obtaining ornamental " designs on plaster and other surfaces in immitation of marbles." This is effected by dipping the surface intended to be ornamented on to the surface of water which has been covered by various colours.

[Printed, 3*d*. See Repertory of Arts, vol. 14 (*enlarged series*), p. 25; Mechanics' Magazine, vol. 50, p. 574; Patent Journal, vol. 7, p. 120.]

A.D. 1848, December 21.—N° 12,382.

HOLM, Charles Augustus.—" These improvements consist, " first in machinery applicable to letterpress printing from " at surface." (See Abridgments on that subject.)

“ Secondly, as to machinery for block printing,” namely, “the
“ double cam motion for working the printing blocks; the inter-
“ mittent excentric motion for moving the turner or coloring
“ rollers; the supplying of the colours to the blocks by means of
“ an elastic roller or rollers working into a colour box or boxes,
“ and geared into fixed racks, by which a rotary motion is given
“ to the colouring roller for the purpose of distributing the colour
“ thereon, as it moves under the surface of the blocks; the com-
“ bination of parts into a feeding apparatus, in such a manner
“ that several impressions may be taken from the printing blocks
“ in the same places of the pattern, for the purpose of producing
“ shaded or other printing; the regulating of the tension of the
“ cloth by means of a break applied to independent or separate
“ tension rollers; the printing or discharging of colours on
“ a vacuum table, for the purpose of drawing the colours or
“ other liquids through the fabric.

“Thirdly, the machinery for producing shaded or other print-
“ ing,” namely, “the producing of shaded or other printing in
“ one or several colours on silk, cotton, woollen, and other fabrics,
“ either on one or both sides of the fabric, by means of surface or
“ other rollers geared together by intermediate wheels, or by a
“ registering chain; and that whether the fabric be moved in a
“ horizontal or perpendicular direction between the printing
“ rollers, whereby spots, plaids, waving lines, or other configura-
“ tions may be produced, either by printing the colours on the
“ fabric, or by discharging on a dyed ground, or discharging and
“ printing colours in the part so discharged, or by printing the
“ colours first, and then covering the printed part with a protect-
“ ing paste; the combinations of any or either of the machines
“ described under the second head, either with a washing appara-
“ tus or a protecting blanket, or steam drying apparatus; the
“ combination with separate tension rollers and also with pin
“ rollers, whereby a superior register of the pattern may be
“ obtained; the packing of pattern wheels, bars, or surface rollers
“ with wool or other absorbing substance within hollow parts of
“ the pattern wheels, bars, or printing surfaces, and covering
“ such packing with flannel, whereby the printing surface will
“ absorb a greater quantity of color than otherwise, and whereby
“ the shaded effect or depth of color may be produced with a less
“ number of printing rollers; the mounting or supporting print-
“ ing rollers on friction wheels, or rollers when used for such

" purposes; the manner of making, forming, and combining " parts for surface rollers; the supporting or guiding of the " fabric between rollers with indentations or cavities in their surfaces, so as to admit the shaded or printed part of the fabric to " pass between the rollers without touching such rollers, and also " the covering of the supporting or guiding rollers with an endless " blanket, the lower part of which works in water, whereby the " indentations or cavities in the supporting or guiding rollers may " be dispensed with; the making of a division in a colour box or " boxes in such a manner that, by supplying the colours at each " end they will fill all the different compartments across the machine; the giving of a backward and forward motion to a frame " in which frame the fabric is kept stretched, and in which it is " moved between printing rollers, which rollers revolve on their " shafts by means of an endless chain fixed to the moveable " frame, and so arranged as to register the colours and advance " the fabric by a motion considerably slower than the backward and " forward motion of the chain and of the moving frame, whereby the " printing rollers will print several times in the same places, " according to the adjustment of the velocities of the two combined motions, and thus produce the shaded effect or intensity " of colour on the fabric, and also the modification of this combination in the manner indicated, the using of a printing table in " combination with a registering chain for advancing the fabric " on a table, over which a backward and forward motion is given " to printing rollers geared into the chain at the same time as the " fabric advances at a slower rate than the motion of the printing " rollers. The heating of the colours, by placing the colour boxes " on a hollow plate or plates, into which heated air or other gases " are admitted."

[Printed, 6s. See Mechanics' Magazine, vol. 50, p. 621.]

A.D. 1848, December 21.—N° 12,388.

CURTAIN, William. — "Improvements in the method of " manufacturing Brussels, tapestry, Turkey, and velvet or cut " pile carpets, and velvets, silks, linen, mixed cloths, and rugs of " all descriptions, by which method less warp is required, and " perfect and regular figures or patterns are produced."

These improvements consist "in the manufacture of fabrics, by " weaving the threads or warp into a slight cloth, printing the "cloth so woven, and the skein or shoot for silken fabrics, and "weaving up such cloth." The printing may be performed with blocks in the ordinary manner, or by a large block, which is caused to traverse on wheels from the sieve where it is supplied with colour to the printing table, over which the fabric passes.

[Printed, 9*d*. See Mechanics' Magazine, vol. 50, p. 619.]

A.D. 1849, February 14.—N° 12,477.

CHAUDOIS, Achille.—"Improvements in extracting and "preparing the colouring matter from orchil." The Patentee claims the "obtaining colouring matter from orchil, by means of "washing lichen or orchil so as to obtain solutions of the same, "and treating these products in place of the mass to obtain "colouring matter." The washing of the dye lichens or orchil may be effected with hot water only, or it may be slightly impregnated with alkali, or urine and lime.

[Printed, 3*d*. See Repertory of Arts, vol. 14 (*enlarged series*), p. 154; London Journal (*Newton's*), vol. 35 (*conjoined series*), p. 116; Mechanics' Magazine vol. 51, p. 163; Patent Journal, vol. 9, p. 59.]

A.D. 1849, February 15.—N° 12,481.

ERWOOD, John.—"Improvements in the manufacture of paper "hangings." "The paper to be operated upon, according to my "invention is previously prepared with a coating of colour as a "groundwork, the color used being suitable for the colors of "the ground of the paper; the piece of paper so treated having "been properly dried is then laid out on a board with the colored "surface uppermost, and I proceed to give it a coating of the "matter known in the trade as 'satin white,' or it may be 'satin "'white' mixed with a color. This is applied to the whole surface of the paper by means of brushes in the ordinary manner. "I then proceed to delineate the marble on the moist or wet surface of the paper produced by the application of the 'satin "white,' and by preference, putting in what is called the veining first, which is performed with the ordinary crayons, the "colors of which are suitable to produce the veining required "for the character of the marble. This veining is next softened "off by the ordinary softening brush, in order to blend the color "of the veining slightly with the groundwork or coating of 'satin "'white,' so as to break the harshness of the outline. The colors

" are then applied while the 'satin white' is still in a moist or " damp state, introducing them with brushes in the ordinary way, " in imitation of the kind of marble or porphyry to be represented. " These colors are then smoothed down or subdued, and blended " with the ground or coating of 'satin white.'"

" I prepare the colors used in my new manufacture with a " proportion of satin white, so that the colors shall also present " a surface capable of receiving the polish or gloss to be imparted " to it."

" In manufacturing granite papers, according to my invention, " I also employ paper previously prepared with a coating of color " as a groundwork, which while in a dry state receives a coating " of 'satin white,' colored or otherwise, it being laid out on a " board as before described with reference to the marble paper. " Whilst this coating is yet in a moist or damp state, I proceed " to apply the coloring matter in imitation of granite, in the ordinary manner, by splashing or otherwise causing the color to " adhere in spots to the 'satin white.'"

"The colors used in splashing, in imitation of granite, are also " prepared with a proportion of 'satin white.'"

" Marble and granite papers prepared according to this invention, after having been thoroughly dried are then subjected to " the process known in the trade as rubbing, for the purpose of " imparting the desired gloss or polish."

[Printed, 3*d*. See Mechanics' Magazine, vol. 51, p. 189; Patent Journal, vol. 7, p. 204; Engineers' and Architects' Journal, vol. 12, p. 301.]

A.D. 1849, February 28.—Nº 12,499.

DAVID, Pierre Isidor.—" Improvements in bleaching cot" ton." These improvements consist in placing the cotton to be bleached in a suitable vessel, and causing chlorine gas to permeate and pass through it. When the bleaching process is completed, the excess of chlorine may driven off by means of air propelled by a pump or blowing machine; after which " volatile " alkali or the vapour of sulphuric ether," or other suitable matter (mixed with air), " calculated to destroy the effect of any remaining " chlorine and hydrochloric acid that may be in the cotton," is caused to pass through it.

[Printed, 7*d*. See Repertory of Arts, vol. 14 (*enlarged series*), p. 213; London Journal (*Newton's*), vol. 35 (*conjoined series*), p. 168; Mechanics' Magazine, vol. 51, p. 211; Patent Journal, vol. 8, p. 32.]

A.D. 1849, March 14.—N° 12,517.

SWAN, Alexander.—" Improvements in heating apparatus " and in applying hot and warm air to manufacturing and other " purposes where the same are required."

The first improvement consists in causing the draft flue from the furnace to proceed round and round a boiler, for the generating of steam, in a "spiral flue." In the case shown in the drawing the boiler heated by the "spiral flue" is a supplementary boiler or tube, and is placed under the large boiler.

Secondly, shows the application of this principle, namely, of carrying the flue round the boiler in a spiral manner, to the " evaporation of leys." In this instance there are two long boilers round which the flue is successively carried; the two boilers are connected to each other by a pipe; from the upper boiler a pipe is carried to a small open cistern, and from the bottom of this cistern another pipe is carried down and connected to the lower boiler. On heating this apparatus the ley flows upwards and along the pipe into the open cistern, where the steam escapes. The ley then descends and re-enters the lower boiler, where the circulation is renewed.

Thirdly, " shows the application of this spiral flue system to " the distillation of coal or peat."

Fourthly, its "application to the heating of air for drying " purposes, such as the drying of yarns, cloth, paper, grain, and " other fabrics and substances, and for heating houses and " other buildings." Here the flue from the furnace is carried spirally round a metallic air flue, and thereby heats the air on its passage through the flue before it enters the stove. Air so heated may be applied to the purpose of evaporating liquids.

The Patentee also describes a mode of "regulating the draft " through the chimney in accordance with the pressure of the " steam inside the boiler." The damper is counterpoised by a weight and chain carried over a pulley; on the axis of the pulley is fixed a pinion, which may be actuated by a rack attached to a plunger which works freely in an upright cylinder; the bottom of the cylinder is closed by a diaphragm of any suitable elastic substance, such as vulcanized caontchouc, and is attached by flanches to a steam pipe in communication with the boiler. As the pressure of the steam decreases the plunger descends by means of the elasticity of the diaphragm, and thereby opens the damper. When the pressure increases the steam elevates the diaphragm and plunger and causes the damper to close.

[Printed, 1*s*. 4*d*. See Mechanics' Magazine, vol. 51, pp. 282 and 361; Patent Journal, vol. 7, 250.]

A.D. 1849, March 26.—Nº 12,534.

PARKES, Alexander.—"Improvements in the deposition and "manufacture of certain metals, and improved modes of treating "and working certain metals and alloys of metals, and in the application of the same to various useful purposes." This invention consists partly in improvements in the manufacture o metals by using a blowing apparatus to force air and gases on or into melted metals or ores. Also, "in combining iron, silver, and "nickel, and their alloys, with phosphorous," while they are in a fused state. The product is applicable to printing rollers and tubes. Also in casting a coating of some phosphuretted compound of copper, silver, zinc, tin, lead, bismuth, and their alloys, or of tin, zinc, lead, and their alloys, "upon copper rollers or cy"linders, which have been reduced after repeated use, and turning "down." Another part of this invention "consists in forming a "roller or cylinder of iron, of brass, or of white metal, composed "of tin, lead, zinc, and antimony in various proportions, and "giving to the same a copper surface by means of electric deposi"tion, employing the well-known solutions of copper for this "purpose."

[Printed, 6*d*. See Repertory of Arts, vol. 14 (*enlarged series*), p. 361; Mechanics' Magazine, vol. 51, p. 309; Patent Journal, vol. 8, p. 42.]

A.D. 1849, April 16.—Nº 12,565.

COCKSEY, Thomas, and NIGHTINGALE, James.—"Machi"nery to facilitate the washing and cleansing of cotton and other "fabrics, which machinery is applicable to certain operations in "bleaching, dyeing, printing, and sizing warps and piece goods."

"This invention consists of machinery comprising a series of "revolving (angular) beaters moving in a trough in such man"ner that the cotton or other fabric to be washed (bleached, dyed, "or sized, as the case may be) is caused to descend from each "succeeding beater into the water (or liquor) and to ascend there"from to the next beater;" also of a "series of angular carriers" placed between the beaters, which cause the "fabrics to be moved

" to and fro in the water, in addition to such fabrics descending " into and rising from the water." "The supply and overflow of " the water is so arranged that the fabrics may leave the water " where the supply takes place, and therefore when passing out of " the trough subjected to the cleaner water." To accommodate the machine to fabrics of different strengths, "we cause the beaters " to be driven with friction clutch boxes."

[Printed, 9*d*. See Repertory of Arts, vol. 14 (*enlarged series*), p. 353; Mechanics' Magazine, vol. 51, p. 379; Patent Journal, vol. 8, p. 46.]

A.D. 1849, April 21.—N° 12,581.

BROQUETTE, Charles Alexander.—" Improvements in " printing and dyeing fibrous and other materials."

This invention consists in the "employment of nitrogenous com- " pounds in combination with an alkaline earth in the printing " and dyeing cotton and other vegetable and other fibres and sub- " stances; also in the employment of nitrogenous substances " coagulable by heat alone, or by chemical agents, as a mordant, " for the impregnation of vegetable fibre." The nitrogenous substances may be obtained from milk or from the muscular parts of the flesh of animals, and then combined with slacked lime, ammonia, and olive oil. This compound, on being applied to the fabric and steamed, imparts to its surface an animal property whereby it will be rendered more suitable for taking and retaining colours or colouring matter; or it may be employed by the aid of steam to fix pigments on cloth; or albumen, serum, &c., may be used as a mordant, by the aid of steam, without the alkaline earth, but with the addition of oil and gum.

[Printed, 4*d*. See Repertory of Arts, vol. 14 (*enlarged series*), p. 375; Mechanics' Magazine, vol. 51, p. 404; Patent Journal, vol. 8, p. 138.]

A.D. 1849, April 28.—N° 12,593.

GARNIER, Alphonse.—(A communication.)—" Improvements " in extracting and preparing colouring matter from orchil."

This invention consists "in obtaining coloring matter from " dye lichens or orchil, by treating alone the said coloring matter, " with certain known agents, and the processes for reducing the " same to a pure state." The colouring matter may be extracted by boiling water to which alkaline salts have been added, by washing, or by distillation. To the filtered solution is added the

" necessary alkalies generally employed;" or deuto-chloride of tin is added, which causes a precipitate which is collected and filtered. The colour from this is developed in a concentrated form by the addition of alkalies; or the solution may be evaporated down to " a more or less advanced stage of siccity;" or the decoction may be clarified by the addition of albumen, bullock's blood, gelatine, &c.

[Printed, 4*d*. See Mechanics' Magazine, vol. 51, p. 431; Patent Journal, vol. 9, p. 71.]

A.D. 1849, May 1.—N° 12,597.

DALTON, John.—" Improvements in printing calicos and other " surfaces," consist, firstly, in "the novel combination of mate- " rials, their preparation and application as a lapping or covering " to the printing cylinder of machines used for the printing of " calicos, muslins, carpets, papers, and other surfaces, or any mo- " dified combination or preparation of the same, as applied to such " purposes." The material employed is gutta percha, dissolved by suitable solvent, which is applied to the surface of the lapping of the bowl of the printing machine.

" Secondly, the novel combination and preparation of materials, " and the application thereof, as a blanket or endless web to ma- " chines for printing calicoes and other surfaces, or any modified " combination or preparation of the same as applicable to such " purposes," consists in covering the blanket, which may be composed of wool, cotton wool, and linen, or wool and cotton, with a coating of dissolved gutta percha; or by uniting two folds of such blankets with a coating or layer of dissolved gutta percha between the folds and thus forming one blanket.

[Printed, 4*d*. See Mechanics' Magazine, vol. 51, p. 448; Patent Journal, vol. 8, p. 94.]

A.D. 1849, May 15.—N° 12,610.

THOM, John.—" Improvements in cleansing, scouring, or bleach- " ing silk, woollen, cotton, and other woven fabrics and yarns, " and in ageing fabrics and yarns when printed."

This invention consists, " first, in the cleansing, scouring, or " bleaching goods by passing or moving them through or in a " gas contained in a suitable chamber." The gas employed may be sulphurous acid gas, chlorine, or other bleaching agent; and the vessel to contain the gas may be a chamber of brick having rollers fitted up within it, over which the fabric is caused to pass.

"Secondly, the ageing of goods by moving or passing them "through a chamber containing aqueous vapour." The goods may be passed over rollers fitted in a chamber the air of which is saturated with the moisture arising from the vapour of water at about 180° F.

[Printed, 1*s*. 4*d*. See Mechanics' Magazine, vol. 51, p. 500; Patent Journal, vol. 8, p. 89.]

A.D. 1849, May 24.—N° 12,618.

CROSSE, Andrew.—"Improvements in tanning hides and "skins, and also in dyeing fabrics and substances." These improvements relate, first, to the application of "hydro-sulphuret "of lime in the process of unhairing hides and skins." Secondly, to "improvements in the process of tanning hides and skins," by means of the galvanic action between plates of lead and zinc.

"Disclaimer." "November 22, 1849."

"That part of the invention which was intended to have been "described under that part of the title which is contained in the "following words 'and also in dyeing fabrics and substances' "is disclaimed."

[Printed, 4*d*. See Repertory of Arts, vol. 15 (*enlarged series*), p. 35; Mechanics' Magazine, vol. 51, p. 524; London Journal (*Newton's*), vol. 36 (*conjoined series*), p. 319; Patent Journal, vol. 8, p. 116.]

A.D. 1849, May 24.—N° 12,621.

STEINER, Frederick.—"Improved processes and apparatus "to be used in the Turkey-red dye on cotton and its fabrics."

This invention consists, "first, in securing between two pieces "of woven fabric cotton in the wool, in the yarn, or in any of "its intermediate stages, or in such of its fabrics as cannot be so "advantageously operated upon in the ordinary manner, whereby "such cotton may be prepared to undergo part of the various "well known processes of the Turkey-red dye, such as bleaching "or scouring, oiling and mordanting, all or any of which may "be applied to such cotton in the same manner as to ordinary "piece goods."

" Secondly, in an improved apparatus to be applied to dye " vats, by the aid of which cotton yarn may be subjected to all " or any of the processes of dyeing, washing, and brightening " before it is removed from the dye vat to which the improved " apparatus is applied." This apparatus consists of a cistern fitted with rollers, one row placed near the top, and another row near the bottom around which the hanks of yarn are stretched. The upper rollers are caused to revolve, by means of intermediate wheels, and carry with them the yarn, which is kept separate by means of wires or midfeathers.

" Lastly, in certain improved processes and apparatus by which " cotton fabrics may be suspended in stoves for drying and " heating them, their movements therein regulated, and the " fabrics withdrawn from such stoves when desired." The usual rails upon which the cloth is suspended are substituted by rollers, and near the floor of the stove is another row of rollers, over and under which the cloth is threaded in a continuous length. The upper rollers are driven by intermediate wheels. In an adjoining room is placed a revolving drum, from which motion is communicated to the upper rollers, by means of which the dried cloth is drawn out of the stove and replaced by wet cloth.

[Printed, 1*s.* 4*d.* See Mechanics' Magazine, vol. 51, p. 525; Patent Journal, vol. 8, p. 271.]

A.D. 1849, June 2.—N° 12,626.

POOLE, Moses.—(A communication.)—" Improvements in brazing, pressing, separating, cleaning, and bleaching, and in cooling " or heating matters; also in pistons, valves, taps, and spring apparatus." By Disclaimer, dated 1849, December 1, the title of this patent is restricted to " Improvements in separating, cleaning, and " heating matters." " The improvements in separating matters " consist of new arrangements and additions to the machines heretofore used for extracting liquids from stuffs and substances by " centrifugal force." " On the periphery of the drum [of the hydro-" extractor] a pipe with a flexible joint is fastened, having its " outlet on the outside of the periphery, and its inlet moveable " nearer to or further from the periphery, by means of a cord " passing over a pulley and fastened to a moveable collar or " socket." This invention is particularly applicable in separating the liquid from such substances as starch. The solid parts of the starch choke up the filtering medium, and prevent the further passage of the liquid, which then may be drawn off from the inner stratum by means of the pipe with the flexible joint. Matters may also be separated by using a centrifugal apparatus lined with suitable woven or perforated material in which is placed the substance to be operated upon. The separation may be assisted by a brush. This apparatus may be used for separating dust from seeds or other like articles, as well as liquids from solid bodies. Another improvement in the centrifugal apparatus consists in exhausting the air from under the drum, which allows the soap to act more beneficially by preventing it from lathering.

" The improvements in heating matters consist of an arrange-" ment of machinery whereby fluids in a very divided state are " subjected to a volume of hot air or steam forced upon them." This may be effected by causing a centrifugal machine to rotate in a chamber into which hot air or steam is introduced. This invention may be applied "to heating liquids from the waste " steam of high pressure engines."

The Patentee also claims "an arrangement by which the heat " of the vapour in passing away is brought in contact (through " the medium of metal plates) with fresh air, which by this " means becomes also heated." The " saturated or deteriorated " hot air or vapor is caused to flow in one direction by means of a fan, through narrow circular chambers or channels made of copper; while the fresh air or liquid to be treated is caused to flow in the opposite direction, also in closed channels. The two sets of circular channels being in contact with each other, the heat of the waste vapor is transmitted to the air or liquid desired to be heated.

[Printed, 1*s*. 2*d*. See Repertory of Arts, vol. 15 (*enlarged series*), p. 140; Mechanics' Magazine, vol. 51, p. 546.]

A.D. 1849, June 14.—N° 12,658.

BURCH, Joseph.—" Improvements in printing on cotton, " woollen, silk, paper, and other fabrics and materials." The Patentee claims, "first, the mode of constructing a machine " which shall consist of a series of surface [block] printing " machines," "joined together at equal distances, and by means " of connected shafting or otherwise, giving the whole a simulta-

" neous movement, so that each machine shall print a different " colour of the same design."

" Secondly, the mode of using the combined efforts of a series " of [block] printing machines."

" Thirdly, the mode of conveying the cloth or material to be " printed through a series of [block] printing machines."

" Fourthly, the mode of using pin points, metal, or non- " elastic bands, and guide rollers, in connection with an endless " cloth or material," for the purpose of moving the fabric with such precision through the machines, that each block will deposit its colour in its proper place.

" Fifthly, the so repeating from printing surfaces their impres- " sions on the same spot, when by mechanical means that the " weight or pressure of the successive impressions shall be varied," whereby in using a heavy pressure with the first impressions of the blocks, the colour is forced into the fabric, and by reducing the pressure with the last impressions, the colour is left more on the face which gives greater brilliancy to the result.

" Sixthly, the mode of bringing the furnishing rollers alter- " nately in contact with the sieve rollers."

" Seventhly, the mode of using a large drum or wheel, in the " manner and for the purposes described," and consists of a drum or large printing " bowl," of sufficient dimensions the whole length of the fabric to be printed may be laid round it at one time. Round its whole circumference is fixed a continuous row of cogs or teeth, into which may work numerous printing rollers with attendant colour apparatus, each of which will print its separate colour, and being in circumference an aliquot part of the circumference of the bowl, will repeat exactly its impression in the same place on the fabric as often as the bowl is revolved.

" Eighthly, the mode of securing carpets or thick materials " from shifting on a circular or flat surface during the process of " printing by the aid of pin points." These points must only be of sufficient length to hold the cloth without injuring the rollers or blocks when their pressure is applied.

" Ninthly, the mode of cutting or checking the surfaces of " rollers before any parts of the design are marked upon them." The wooden rollers are similarly cut, and for the same purpose as was previously described when applied to blocks.

" Tenthly, printing railway passenger tickets."

" Eleventhly, the printing on wetted carpets, and other piled " fabrics, in order to obtain a better absorbent of the colour and " cause it to sink into the pile."

[Printed, 1*s*. 8*d*. See Mechanics' Magazine, vol. 51, p. 596; Patent Journal, vol. 8, p. 151.]

A.D. 1849, August 30.—N° 12,751.

ROBINSON, James.—" Improvements in preparing or manu" facturing orchil and cudbear." Consist " in causing the paste " (lichens ground in the ordinary manner with liquid ammonia) " to be passed through orifices or openings, whereby the surfaces " thereof are more largely exposed to atmospheric air;" "and " also the mode of drying paste orchil when converting it into " cudbear." The paste when caused to pass through the orifices in an apparatus for the purpose is let fall lightly on a surface for the purpose of drying, and when dry it will be fit to be ground according to the ordinary plan.

[Printed, 3*d*. See Repertory of Arts, vol. 15 (*enlarged series*), p. 379; London Journal (*Newton's*), vol. 36 (*conjoined series*), p. 159; Mechanics' Magazine, vol. 52, p. 179; Artizan, vol. 8, p. 95; Patent Journal, vol. 9, p. 19.]

A.D. 1849, October 12.—N° 12,800.

LE BASTIER, Jules.—" Improvements in machinery or appa" ratus for printing." They consist, " first, in printing mecha" cally one or more colours on the upper surface of a moveable " cylindrical table, by means of one or more printing rollers " engraved in relievo." The printing rollers are placed round the upper circumference of the bowl, instead of the lower, as is commonly done.

" Secondly, the arrangement of apparatus for causing the moveable table (the bowl) to approach or recede from the " printing rollers, and for maintaining the constant catching of " the cogs by which these said rollers are put in motion, inde" pendently of the approaching or receding of the moveable " table (the bowl)." The bowl is placed on two parallel frames which are elevated and depressed by means of two excentrics (upon which one end of the frames rest), acted on by means of pinions and cranks. "The constant catching of the cogs" is effected by placing the driving wheel on a separate bearing from at of the bowl.

"Thirdly, the constructing printing rollers cut in releivo, and " apparatus for regulating their respective positions relatively to " the moveable cylindrical tables." The roller "is composed of " a thin and cylindrically-shaped sheet of iron or brass fixed on two " cast iron discs having their edges lapping over." The surface of this roller being covered with plaster of Paris, stucco, cement, wood, wax, or other suitable substance, has the pattern placed on it, or cut into it, as required. The relative position of the rollers is regulated in the usual way of printing machines.

"Fourthly, the arrangement of machinery for adjusting and " marking the engraving on printing rollers, by the application of " drawing points, scoopers, and carriage supporters, either for the " purpose of making on the said printing rollers certain engravings, scraping, dividing or turning them."

"Fifthly, the alimenting of (surface) printing rollers by means " of endless webs of cloth or felt to supersede color rollers."

"Sixthly, the application of machinery and apparatus to printing with one, two, three, four, five, or even a larger number of " colors, and also to the union of two machines, as herein-before " described."

[Printed, 2s. 5d. See Mechanics' Magazine, vol. 52, p. 316; Patent Journal, vol. 9, p. 44.]

A.D. 1849, October 12.—N° 12,807.

MERCER, John, and BLYTH, William.—"Improvements in " certain materials to be used in dyeing and printing." These improvements consist in the "manufacture and use of the solid or " concrete double salts composed of arsenic acid, or arsenious " acid, and stannic acid, and soda, potash, or ammonia; and " phosphoric acid, and stannic acid, and soda, potash, or ammonia." This embraces all the solid or concrete double salts, which are or may be called phospho-stannates of soda, &c., or arsenio-stannates of soda, &c. The arsenio-stannates of soda may be made by dissolving one and a half pounds of arseniate of soda, in one gallon of stannate of soda liquor, at about 50° T.; and the arseniate of soda itself is prepared by fluxing equal weights of white arsenic and nitrate of soda.

[Printed, 3d. See Repertory of Arts, vol. 15 (*enlarged series*), p. 293; London Journal (*Newton's*) vol. 37 (*conjoined series*), p. 38; Mechanics' Magazine, vol. 52, p. 317; Patent Journal, vol. 9, p. 19.]

A.D. 1849, November 10.—N° 12,841.

OLIVER, Samuel Brown.—(Communicated by Meysenburg, Theodore.)—" Improvements in dyeing and dyeing materials."

This invention consists "in the manufacture and use of certain " mixtures to be employed in dyeing woollen fabrics, or fabrics " containing a mixture of wool," to be used in dyeing in the same manner as cream of tartar or argol. The first mixture is composed of " 100 parts chloride of sodium, 300 of water, 10 of " sulphuric acid, 3 of nitric acid, and 1 of arsenious acid."

"The second mixture of 100 parts sulphate of soda or potash, " 6 of sulphuric acid, & 2 of nitric acid."

" The third mixture of 100 parts of sulphate of potash or soda, " 1 of sulphuric acid, 3 of nitric acid, 6 of vinegar or 2 of purified " acetic acid.

"The fourth mixture of 100 parts of sulphate of soda or potash, " 6 of sulphuric acid, & 3 of tartaric acid."

" The fifth mixture of 100 parts nitrate of potash, 30 to 60 parts " sulphuric acid, and 1,000 of sulphate of potash or soda.

" Sixth, mixture of 100 parts of the fifth mixture, 3 of tartaric " acid, and 10 of acetate of potash.

" Seventh, mixture of 100 parts of sulphate of potash or soda, 4 " of nitric acid, 4 of acetic acid, and 10 of tartaric acid."

These or analogous mixtures are, when required, to be afterwards dried and reduced to powder for use.

[Printed, 3*d*. See London Journal (*Newton's*), vol. 36 (*conjoined series*), p. 385; Mechanics' Magazine, vol. 52, p. 396; Patent Journal, vol. 9, p. 66.]

A.D. 1849, December 5.—N° 12,879.

CARTER, Edward.—" Improvements in printing calico and " other fabrics."

These improvements consist, first, "in apparatus for applying " color to blocks used in printing calico and other fabrics by " hand." The block, on requiring to be furnished with colour, is placed on a carriage which moves on wheels. On this carriage being moved across, certain colour furnishing rollers are caused to revolve in a colour box by means of a bar, and supply colour to the surface of the block. The whole is placed in a frame on wheels, which may traverse along the table with the printer.

" Secondly, the printing of fabrics on both sides by the aid of " *blocks.*" The printing of one side having been done by one set of blocks, the workman removes the frame to which the fabric is attached. The fabric is dried and again placed with the frame the reverse side up on the table, and printed again with a second set of blocks cut in reverse. The fabric should be slightly stiffened and dried before printing.

"Thirdly, improvements in machinery for printing calico and " other fabrics, whereby one fabric may be printed on both sides, " or two fabric, each on one side." This is effected by passing the single piece, or two pieces with a back cloth between them, through between pairs of surface rollers, working in contact, and supplied with colour, one roller of each pair having the pattern cut in exact reverse of the other.

[Printed 1s. 10d. See Mechanics' Magazine, vol. 52, p. 477; Patent Journal, vol. 9, p. 127.]

A.D. 1850, January 3.—N° 12,916.

LIGHTFOOT, Thomas.—" Improvements in printing and dyeing " fabrics of cotton and other fibrous materials." Consist, first, in " the printing of archil and cudbear colouring matters on fabrics " composed wholly or partly of cotton, linen, or other vegetable " fibre, when such fabrics have been first prepared." The fabric is prepared with a basis of oil or fats, and the preparation for the Turkey red process is preferred. "The archil, or a preparation of " cudbear, or a lake prepared from them," may be mixed with gum senegal water, printed on such prepared fabric, and afterwards steamed in the usual way. Or the fabric may be prepared with earthy or metallic bases and then printed, such as the "salts of " magnesia, lead, copper, tin, zinc, bismuth, cobalt, or nickel," in a state of saturated solution, the fabric being then passed through a weak solution of potash, soda, or ammonia. Or the preparation may be from alkalies or alkaline solutions of earths or metallic oxides.

"Secondly, the use of magnesia, mixed with archil or cudbear " colours, for printing on fabrics."

"Thirdly, the use of archil or cudbear colouring matters in " dyeing the prepared fibres of fabrics composed wholly or partly " of cotton, linnen, or other vegetable matters." The dyeing process is performed in the usual manner, but to the dye liquor is added two ounces of aluminate of soda, at 24° T., to one pound of cudbear, or in place thereof, "aluminate of potash, or lime water,

" or arsenite of potash or soda, or stannate of potash or soda, " or silicates of potash or soda, or other alkali or alkaline earth of " equivalent strength."

[Printed, 4d. See Repertory of Arts, vol. 16 (*enlarged series*), p. 93; London Journal (*Newton's*), vol. 37 (*conjoined series*), p. 97; Mechanics' Magazine, vol. 53, p. 17; Patent Journal, vol. 9, p. 162.]

A.D. 1850, January 26.—N° 12,942.

DALTON, John.—" Improvements in and applicable to machinery or apparatus for bleaching, dyeing, printing, and finishing textile and other fabrics, and in the engraving of copper " rollers and other metallic bodies." This invention consists, first, " in the combination of materials for, and their application in, the " construction of cylinders or bowls, with the surface of gutta " percha, or any modified combination or application thereof." " Secondly, in the adaptation of my improved cylinders to, and " their application in, machinery or apparatus for bleaching, dyeing, printing, and finishing fabrics, or in apparatus used in any " part or branch of the said processes." The cylinder or bowl is constructed as follows :—" Setting up the shaft (centre) in a perpendicular position, and taking off the upper iron disk, I make " fast to the shaft the lower iron disk, and cover it with a layer of " the hot gutta percha. On this I place one of the wooden disks, " cover such disk with hot gutta percha, then upon this I place " another wooden disk, and so on, observing to cross the grain of " each alternate disk, and pressing the same firmly together, after " fitting every three or four disks, to exclude the air and render the " whole perfectly adherent. When the shaft is filled, I replace the " upper iron disk and make it fast to the shaft." The external surface of the roller is then covered with a coating of hot gutta percha, in thickness about one and a half inches. A bowl made on this principle may, with advantage, substitute also the ordinary printing bowl of the printing machine.

Thirdly, an apparatus for printing upon both sides of the fabric. This apparatus consists of two of the improved cylinders or bowls, one placed above the other. The fabric is caused to pass round the under one, and then over the upper one, and is printed by two rollers, one of which works against the lower bowl, and the other against the upper bowl. The engraving on one roller is in exact reverse of the other. The printing is performed in the usual manner, "Lastly, the novel application of my improved rollers in engrav-"ing." These rollers of small dimensions may be employed as bearers in the process of mill engraving; or, when made with glass or earthenware centres, as revolving supports to metallic rollers while being subjected to the action of the acid in etching; or for the purpose of varnishing metallic cylinders already engraved, preparatory to exposing them to the action of nitric acid to deepen the engraved lines.

[Printed, 6*d*. See Mechanics' Magazine, vol. 53, p. 97; Patent Journal, vol. 9, p. 210.]

A.D. 1850, January 29.—N° 12,954.

TEMPLETON, JAMES.—"Improvements in manufacturing "figured fabrics, principally designed for the production of "carpeting." Consists, first, in "the manufacture of carpet-"ing and figured fabrics, with a coloured pattern or design on "one or both sides by means of printed weft threads." The basis of this invention rests on the practical advantages to be derived from printing on the weft threads instead of upon the warp threads, whereby the pattern on figured fabrics may be produced by the weft threads alone. The colours of the whole design being properly "read off" with a view to weaving, the weft may be printed by various means; by thin stripes or blocks of wood, several of which, after having been supplied with proper colours, are arranged in a frame and applied at one operation; or by blocks applied to cylinders, &c.

"Secondly, in the manufacture of carpeting and figured fabrics "by means of a party coloured cut pile weft from a plain cloth "or texture of one colour, and printed with different colours." To effect this "I throw in a white weft, or a weft of one uniform "colour, which, after being woven into the warp so as to form a "texture, is printed across the texture with divers colours accord-"ing to the intended pattern, and in a similar manner to the pro-"cess for printing weft threads. This coloured texture is to be "afterwards cut up into strips between the splits of warp, and "thereby form a cut pile weft, which may then be woven in the "usual manner to form certain cut pile fabrics."

[Printed, 1*s*. 8*d*. See London Journal (*Newton's*), vol. 37 (*conjoined series*), p. 149; Mechanics' Magazine, vol. 53, p. 117; Patent Journal, vol. 9, p. 237.]

A.D. 1850, January 31.—N° 12,956.

BURY, Thomas, and RAMSDEN, Nathan.—"Improvements "in machines for glazing, embossing, and finishing woven fabrics "and paper." These improvements apply particularly to "machines for glazing, embossing, and finishing calicoes, muslins, "woven or printed fabrics, and paper," and consist in "the "arrangement and application of two or more friction bowls, "rollers or cylinders, made of iron, or any metal or material "suitable for the purpose, acting in conjunction with one principal bowl or roller made of paper, or any other suitable material, "instead of the arrangement of one friction bowl, roller, or "cylinder, as used in the ordinary machines now in use. This "machine is equally applicable to the aforesaid purposes if "inverted; a greater amount of pressure is thus gained, by forcing the principal or paper bowl on and between the two friction "bowls, instead of the two friction bowls being forced upon the "principal or paper bowl; and this arrangement also renders "practicable the working of two pieces of cloth, fabric, or "paper, with the same facility as one. A drag or retarding roller "may be caused to press upon the principal or paper bowl, which "will produce an increased glaze or finish on the fabric or paper."

[Printed, 9*d*. See Mechanics' Magazine, vol. 53, p. 117; Patent Journal, vol. 9, p. 9.]

A.D. 1850, February 27.—N° 12,980.

COCHRAN, Mathew.—"Improvements in machinery for the "production and ornamenting of fabrics and tissues generally, "parts of which improvements are applicable to the regulation of "other machinery, and to purposes of a similar nature." This invention consists principally in "improvements in perforating "surfaces used in Jacquard machinery;" "in the mode of "reading in the pattern upon punches;" "in the form of the punches;" "in the arrangement and combination of parts forming the Jacquard apparatus;" "in the system of recovering the drop or "pattern needles;" "in the use of twisted flat pattern needles;" "in the use of draught needles with bent eyes;" in the mode of "recovering the vertical draught needles;" "in the working of "Jacquard apparatus by means of sheets traversing over a cylinder revolving on a fixed centre;" "in the mode of regulating the

" colors to be brought into use;" "on the system of operating " on harness work; "in operating by means of radiating pat- " tern or draught needles;" "in the system of reading in" the " various colours of different lines of the design;" "in the " adaptation and employment of a modification of my Jacquard " needle action, for various purposes of regulating or governing " mechanism;" "and in the use of the self-adjusting lever action, " represented in the drawing;" also

"Thirteenth, the use or employment of my Jacquard apparatus " with the drop or pattern needle, and longitudinal draught needle " action; or my 'edge-card' apparatus, with or without the peculiar " needle action for printing or impressing colours on textile or " other surfaces." The "impressing pistons" are actuated by the needles falling through the perforations of the pattern sheet which traverse over cylinders in the usual way.

"Sixteenth, in the arrangement of a colour table, boxes, and " bands, for printing various materials, wherein the colour is " brought up from below to an upper printing or impressing table."

The colour boxes, of which, there may be several placed together, are very narrow, in which, and over guide rollers, is caused to revolve an endless colour-carrying band, which carries up and furnishes the printing table with colour. The printing "trough or " table," in this case, forms the support to the endless band.

[Printed, 2*s*. 6*d*. See Mechanics' Magazine, vol. 53, p. 179; Patent Journal, vol. 10, p. 18.]

A.D. 1850, March 7.—N° 12,995.

BROOMAN, Richard Archibald.—(A communication.)— " Improvements in types, stereotype plates, and other figured sur- " faces for printing from." This invention consists in "covering, " coating, or plating of the surfaces of types, stereotype plates, " and other figured surfaces for printing from, in whole or in " part with some protecting and preserving metal;" and may be effected by depositing a coating of metal on the printing surface by means of galvanic electricity.

[Printed, 5*d*. See London Journal (*Newton's*), vol. 37 (*conjoined series*), p. 179; Mechanics' Magazine, vol 53, p 219; Patent Journal, vol. 9, p. 274.]

A.D. 1850, March 7.—N° 12,998.

DE WITTE, Gerard John.—"Improvements in machinery, " apparatus, metallic, and other substances, for the purposes of " letterpress and other printing."

This invention consists, "first, in the combination of machinery "or apparatus for the purpose of manufacturing cylindrical, "stereotype, 'clichage cylindrique,' by which newspapers, "journals, or other works or papers are printed on both sides at "once by a continuous movement, and cut and folded when "required.

"Secondly, the printing of painted papers, and woven and other "fabrics, by a similar continuous movement, by or with the use "of cylindrical stereotype (clichage cylindrique)." "The impression or printing is effected by means of portions of metal, "cylindrical rings, or rings in relief, placed on cast iron or other "cylinders, of which there may be several arranged in succession." Such rings may be made of other suitable hard material, on the surface of which is placed the pattern to be printed. The colour is supplied to the printing surface from a colour "hopper," by means of intermediate gelatine rollers covered with vulcanized india-rubber. Between the pressing "screws and cushions" are placed a plate or band of vulcanized india rubber, which serves as a spring.

[Printed, 2*s*. 11*d*. See Mechanics' Magazine, vol. 53, p. 215; Patent Journal, vol. 9, p. 185.]

A.D. 1850, March 18.—N° 13,005.

MILLIGAN, Robert.—"An improved mode of treating certain "floated warp or weft, or both, for the purpose of producing ornamental fabrics." The improved mode consists in "printing in "bright, clear, or delicate colors, on warp or weft, suitable in texture "and color for the reception and display of the same, and floated "on the ground of any fabric, on the ground of which such colors "could not have been displayed with so good effect without "such warp or weft floated purposely for the reception and display of such colors, in order to ornament the said fabric." The warp or weft may be floated in the form of a rose, flower, stripe, or other figure, and be printed with suitable colours.

[Printed, 3*d*. See London Journal (*Newton's*), vol. 37 (*conjoined series*), p. 39; Mechanics' Magazine, vol. 53, p. 40; Patent Journal, vol. 9, p. 177.]

A.D. 1850, April 26.—N° 13,026.

CLENCHARD, Joseph Theodore.—"Improvements in the "application of archil to the process of dyeing and printing in "colours, and also an improved apparatus to be employed in the

" operation of dyeing." These improvements consist, first, " in " the application of archil lichen or weed, in its natural or un- " prepared state, in combination with alkalies and lime, to the " direct dyeing of wool and silk, and woollen and silken fabrics." The archil being ground is boiled in a liquor composed of lime water and soda ash, with or without the presence of the fabric to be dyed. The fabric is then washed in the " clear liquor of the " dye " and afterwards dried. It is then placed in a closed vessel together with some of the dye liquor, to which is added some caustic ammonia, and is there agitated until it has acquired the desired colour.

" Secondly, the application of archil lichen or weed, in its " natural or unprepared state, in combination with alkalies, and " with or without lime, to the printing of woollen fabrics." The decoction of archil by means of lime and soda ash, or soda ash alone, is concentrated by heat to the state of an extract, and is in that state applied by printing to woollen fabrics. Subsequently ammonia is applied to produce the colour desired.

" Thirdly, the combination of parts forming an apparatus for " dyeing." This dye beck consists of a long wooden vessel suitably heated by steam, containing frames and rollers, to which is attached the fabric to be dyed. A pipe drilled full of holes is placed near the centre of this beck, and extends from end to end. A revolving motion is imparted to the pipe, and the dye liquor is pumped from a vessel outside and injected through the pipe and holes into the beck. The covers or shutters of the beck are caused to oscillate to allow of " ingress and egress to the air through the " vessel."

[Printed, 10*d*. See London Journal (*Newton's*), vol. 37 (*conjoined series*), p. 241; Mechanics' Magazine, vol. 53, p. 276; Patent Journal, vol. 10, p. 4.]

A.D. 1850, April 23.—Nº 13,055.

MACALPINE, William, and McALPIN, Thomas.—" Improve- " ments in machinery for washing cotton, linen, and other fabrics." These improvements consist in " the mode of combining wash " vessels and beaters " for the above purposes. The vessel to contain the linen to be washed with water or suitable liquor is supported on an axis and caused to rotate horizontally slowly. It is further supported by a " hollow axis," through which steam may be admitted to the caseing and hollow bottom "formed by "the perforated false bottom and sides." Over the washing vessel are placed in row a number of "beaters" or stampers which are lifted by suitable "lifters" or revolving cams. The lower ends of the beaters nearest the circumference of the washing vessel should be twice the size of those nearest the diameter. Suitable "stops" are provided to "prevent the beaters falling in close "contact with the false bottom" and injuring fine fabrics.

[Printed, 8*d*. See Repertory of Arts, vol. 16 (*enlarged series*), p. 335; London Journal (*Newton's*), vol. 37 (*conjoined series*), p. 312; Mechanics' Magazine, vol. 53, p. 332; Patent Journal, vol. 10, p. 43.]

A.D. 1850, April 23.—N° 13,056.

HUMFREY, Charles.—"Improvements in the manufacture of "candles and oils, and in the treating of fatty and oily matters. "and in the application of certain products of fatty and oily mat- "ters."

The first part of this invention consists in improvements in the "oxidising of oline and stearine;" "in removing glycerine, or "gummy matter from oline and stearine that have been artifically "oxidized by the use of alkaline solutions;" "and the combina- "tion of the two processes for the purpose of obtaining pure "perolate and perstearate of glycerine."

"Secondly, in combining fatty acids with certain metallic oxides "and peroxides, for the purpose of obtaining coloured salts to "be used as pigments and dyes." The oleic or stearic acid may be combined with soda or other alkali, and in solution be added to any metallic salt, such as sulphate of copper, also in solution, when by mutual decomposition the oleate or stearate of the metallic oxide will be formed. Pigments may also be obtained by the combination of "elaidic" acid with peroxides of metals; also by boiling olate of soda with arsenious acid in excess, and decomposing the product by a neutral protosalt of copper; salts of great brilliancy may be obtained from neutral salts of copper, iron, zinc, manganese, tin, and some other metals, by means of the oleate of soda made from oleic acid, wherein the oxidation has been stopped when its specific gravity advanced to about ·970.

[Printed, 8*d*. See Repertory of Arts, vol. 17 (*enlarged series*), p. 225; Mechanics' Magazine, vol. 53, p. 354; Patent Journal, vol. 10, p. 107.]

A.D. 1850, May 7.—N° 13,068.

DALGLEISH, Robert.—These improvements consist in "so "arranging machinery employed for printing and applying colour "to silk, cotton, linen, woollen, and other textile fabrics, that the "blankets or fabrics called by that name may be washed at the "same time that the printing is going on, in order continuously to "present clean surfaces, and thus to dispense with the necessity "of using interposed fabrics between the "blankets" "and the "cloths to be printed." Water is caused to spirt against the surface of the soiled blanket as the printing proceeds, which softens the adhering colour: brushes are then applied by mechanical means to the surface of the blanket, in order to cleanse it. The excess of water so applied is removed, first by the action of a doctor, and then by a revolving sponge.

[Printed, 1*s*. See London Journal (*Newton's*), vol. 37 (*conjoined series*), p. 326; Mechanics' Magazine, vol. 53, p 379; Patent Journal, vol. 10, p. 80.]

A.D. 1850, May 23.—N° 13,080.

PINCOFF, Simon.—"Improvements in the ageing process in "calico printing and dyeing, which improvements are also applicable to other processes in calico printing and dyeing." They "consist, firstly, in the mode of introducing into the ageing room "or rooms a heated and moistened atmosphere, and of ascertaining and regulating the dew point therein in a quick and efficient "manner." In a small room under or below the ageing stove is placed a cistern of water, which may be heated to about 185° F. by means of steam passed through a pipe into the water. The vapour rising from this water and mixed with air admitted by regulated openings is passed into the stove through perforations made in the floor. The dew point is ascertained by adding cold water to a vessel containing hot water, till dew begins to condense on its outer surface. The temperature is ascertained by the thermometer. The Patentee finds that the stove should be kept at a temperature of 78° F., and that the condensing point should be at 68° F.

"Secondly, the collection of the liberated acetic acid, or the "combining it with a base or any substance or matter capable of "combining with it." The acid vapours near the ceiling of the ageing stove are collected in suitable troughs or tubes by means of a fan, and impelled into suitable condensers, or combined with suitable bases.

[Printed, 4*d*. See Mechanics' Magazine, vol. 53, p. 437; Patent Journal, vol. 10, p. 114.]

A.D. 1850, May 25.—N° 13,081.

RADLEY, WILLIAM, and MEYER, FREDERICK.—"Improvements
" in treating fatty, oleaginous, resinous, bituminous, and
" cerous bodies, in the manufacture and application of them, and
" of their components and subsidiary products, together with the
" apparatus to be employed therein, to new and other useful purposes."
This invention relates, first, "to the manufacture and
" purification of the ordinary 'rock' or 'lime soap' of the composite
" candle manufacturers, denominated by us in this specification
" glycero-pinguate of lime, as a necessary incident to the fabrication
" of soaps and candles, in such manner as to obtain, in a
" separate state, from any given oil or fat, the distinctive material
" of each of these manufacturers, the glycerine," "the oleic, butyric,
" stearic, and margaric acids respectively, the two latter as a
" double acid compound, used and denominated by the trade
" 'candle block,' in distinctly separate and marketable states."
Secondarily, to "improved methods of treating oleaginous and
" fatty bodies, so as either to purify these commodities as they are
" found in the market," " or to obtain these productions of animal
" and vegetable tissues, by processes of incipient manufacture, in
" a purer and less contaminated state than usual." This invention
relates also, "to the treatment of fatty, oleaginous,
" resinous, bitumenous, and cerous bodies integrally, so as obtain
" and apply all or any of their compounds and subsidiary products,
" conjunctively with the several productions of the mineral
" kingdom, to the useful, ornamental, and industrial arts and
" manufactures, in a more definite and systematic form, and with
" less empyricism than heretofore." In this specification, which extends over thirty-eight pages, there is introduced so many new terms (which the Patentees have explained in a glossary), and so much separate matter treated of, as to make it impossible to be abridged satisfactorily within the limits prescribed. Reference should, therefore, be made to the specification itself.

The Patentees propose to apply "organic acids with alkaline, " earthy, and metallic bases, and of organic colouring matters " with these several bodies," "to the purposes of painting, calico " printing, paper, leather, and wood staining, dyeing, and polychromatic embellishments generally;" and also "to the production of dyes and stains upon cotton, linen, woollen, silk, and " other fabrics, together with leather, coriaceous cloth, and other " preparations, by means of sapalic and pinalic mordants."

Attached to the specification is a drawing of the "atmo-dynamic digester," and of the "electro-depurator" employed for the purposes of this invention.

[Printed, 1*s.* 5*d.* See Mechanics' Magazine, vol. 53, p. 456; Patent Journal, vol. 10, pp. 104, 115.]

A.D. 1850, June 4.—N° 13,100.

WATSON, William, the younger.—"Improvements in the preparation and manufacture of various materials to be used in the " processes of dyeing, printing, and colouring."

These improvements consist "in the adding or mixing a solution " of indigo in sulphuric acid to or with common salt, sulphate of " potash, caustic potash, caustic soda, caustic magnesia, carbonate " of potash, carbonate of soda, or carbonate of magnesia; and, " lastly, the manufacture of solid compounds or preparations of " indigo by the admixture of any suitable alkali or alkaline earth, " or the salt of any alkali or alkaline earth, with a solution of indigo in sulphuric acid, so as to form dry or solid compounds." The salt employed is added to the sulphate of indigo, and mixed " in an apparatus or mortar, in sufficient quantity to produce a " compound which is sensibly or apparently dry. In some cases it is advisable to add additional water, in other cases dry salts, and sometimes another salt or alkali for the purpose of neutralizing any excess of acid. The various alkalies and salts may be mixed in various quantities with the sulphate of indigo made from commercial or purified indigo.

[Printed, 6*d.* See London Journal (*Newton's*), vol. 38 (*conjoined series*), p. 101; Mechanics' Magazine, vol. 53, p. 475; Patent Journal, vol. 10, p. 129.]

A.D. 1850, July 22.—N° 13,183.

BESSEMER, Henry.—"Improvements in figuring and ornamenting surfaces, and in the blocks, plates, rollers, implements,

" and machinery employed therein." This invention consists, "first, " in the improved method of figuring and ornamenting surfaces, " that is to say, in so far as regards the doing over of the engraved " block or plate with bronze or other dry powder, and then placing " the same in a heated state upon the surface to be figured or " ornamented, the latter having been previously prepared for the " purpose, by a thin coating of glair or other like substance, or " containing in its composition a sufficiency of (adhesive matter " resulting from dressing or otherwise) to render such coating " unnecessary."

" Secondly, in the use of two blocks, or the double operation of " printing and pressing, for producing bright metallic impressions " on book covers, and other surfaces, without injuring those parts " of the surface uncovered by the design." This is effected by two blocks, one of which is an electrotype copy of the ornamenting block with the highly polished surface; the first applies the size, and the second gives the brilliancy to the impression. In this case the bronze is applied in the usual manner.

" Thirdly, in the ornamenting of woven fabrics by placing them " in contact with some other fabric, which is moistened all over " with adhesive matter, and which upon pressure being applied, " supplies the parts pressed with as much moisture as will cause " the metallic powders to adhere."

" Fourthly, in the admixture of gum resins with bronze pow- " ders, to be used in a dry state, for ornamenting and figuring " surfaces." The resins melt by means of the hot impressing block, and attach the bronze powders more firmly to the fabric.

" Fifthly, in the employment, for figuring and ornamenting sur- " faces, of the compound of gamboge and bronze powder." This compound should be applied to books and papers while in the press (as is now the practice in edge gilding), and afterwards burnished; or the same composition may be used as a paint or marking fluid.

" Sixthly, in the method of producing blocks, plates, or rollers of " malleable cast iron," " for impressing designs in bronze powder " on book covers and other surfaces." A block, plate, or roller, having the outline of the pattern cut upon it, is moulded in sand and then cast in " maleable cast iron ;" the face of the casting is then ground flat and polished, and the engraving completed by the engraver. It is next to be heated to redness, and case hardened in the usual manner.

"Seventhly, the method of removing the superfluous bronze " powder from the surfaces of blocks or rollers used for ornamenting surfaces, by tapping and striking."

The bronze powders may also be applied by heated rollers, upon which the design is engraved in relief.

[Printed, 4*d*. See Mechanics' Magazine, vol. 54, pp. 77 and 83; Patent Journal, vol. 10, pp. 251.]

A.D. 1850, August 16.—N° 13,224.

CLAUSSON, Peter.—(Partly a communication.)—" Improve-" ments in bleaching and in the preparation of materials for " spinning and felting, and in yarns and felts." The Patentee " claims, " first, the method of bleaching by double decom-" position, whereby the various bleaching agents and compounds " used may be recovered and economized." Second, "the " method of bleaching, by the combined action of chlorides, " or carbonates, or chromates, or any other bleaching agent " with fumes of sulphur." In this process of bleaching "I take " the goods after they have passed through the bleaching " liquor (say a solution of the hypochlorite of lime), and then " steep them in a strong solution of some salt whose acid has a " more powerful affinity for lime than hypochlorous, and thus a " strong solution of sulphate of magnesia may be employed, the " sulphuric acid of which, having a strong affinity for lime, com-" bines with the earthy base of the bleaching salt above mentioned " and forms sulphate of lime, and the chloro compound, being thus " liberated, unites with the magnesia of the sulphate of magnesia, " a new salt (hypochlorite of magnesia) having bleaching pro-" perties similar to the lime salt first employed. This newly " formed compound may be in the next instance used as a primary " bleaching agent, and may again be subjected to the process of " double decomposition [by means of carbonates for instance], as " in the foregoing example." The Patentee claims the use " of " all salts which are subject to the same chemical law of decom-" position, and will produce the same result." By another mode of bleaching the Patentee takes "the goods after they have been " steeped in any of the ordinary bleaching liquors, such as the " solution of hypochlorite of lime (chloride of lime) [or in solu-

" tions of certain chromates, manganates, and hypermanganates], " and while they are still wet I expose them to the fumes of sul- " phur slowly burning in a suitable chamber or stove." By this means "the chlorine or chloro compound remaining in the wetted " goods is liberated and allowed to act freely upon the articles to " be bleached." "Third, I claim the preparing of flax and hemp, " and of all vegetable fibre capable of being spun or felted, from " whatever descriptions of plants obtainable, by steeping the " plant from which the fibre is derived, while in the state of straw, " stem, leaf, or fibre, first, in a solution of caustic soda, or other " solution of like properties, and then in a bath of dilute sulphuric " or other suitable acid." "The fibre thus prepared is freer to " heckle, and the straw more easy to scutch, than fibre and straw " treated in the ordinary way." Fourth, after the treatment described under the third head the fibre may be saturated "with a " solution of bicarbonate of soda or any other like agent, and " then decomposing such salt (however such decomposition may " be effected) [by acids or by electricity for example]." " In this " operation it appears that a certain portion of gas being developed " in the fibrous tubes, splits and divides them by its expansive " power into filaments, having the character and appearance of " fine cotton wool, in which state they may be dyed and manu- " factured like cotton or wool." " Lastly, I claim the manufacture " of yarns and felts from a combination of flax or like vegetable " fibre (China grass excepted), prepared and mixed aforesaid with " cotton wool, shoddy, silk waste, fur, and hair, all or any of " them."

[Printed, 4*d*. See Repertory of Arts, vol. 17 (*enlarged series*), p. 236; London Journal (*Newton's*), vol. 38 (*conjoined series*), p. 262; Mechanics' Magazine, vol. 54, p. 142; Patent Journal, vol. 10, p. 228.]

A.D. 1850, August 16.—N° 13,225.

KEATES, WILLIAM.—" Improvements in machinery for manu- " facturing rollers and cylinders used for calico printing and other " purposes." This invention consists, firstly, " in a self-acting " compound machine constructed for the purposes of turning and " boring rollers and cylinders, for planing their inner surfaces, " and for forming a nib or projection in the interior of such rollers " and cylinders."

" Secondly, for casting or moulding ingots, cylinders, and rol- " lers hollow by means of a core or mandril, made of sheet or

“ rolled metal, and for the manufacture of such rollers or cylinders “ from plates or sheets of copper, brass, or other metals.” A tube of thin metal filled with sand forms the core, which, when the metal employed is cast round it, adheres to it and forms the permanent inner surface of the roller. In making rollers or cylinders from sheets of metal the open edges are united by casting metal at a high degree of temperature into the open space. The nib may be formed at the same time by leaving a channel for the purpose in the core.

[Printed, 10*d*. See Mechanics' Magazine, vol. 54, p. 150; Patent Journal, vol. 10, p. 252.]

A.D. 1850, September 5.—N° 13,248.

MATHER, James, the Younger, and EDMESTON, Thomas.—“ Improvements in machinery or apparatus for scouring, finishing, and stretching woollen, cotton, and other cotton fabrics.” These improvements consist in imparting to fabrics a “beetle” or “ linen finish” by means of “a roller, which is caused to move “ to and fro upon the fabric under operation in the direction of “ the width of the fabric.” The fabric to be “finished” in a moist or dry state is wound upon a roller properly supported, to which a slow rotating motion is given, or laid on a flat surface, and a transverse roller is caused to press by its weight upon the coil of cloth, or upon the folded cloth, and to move to and fro until the proper finish is effected. The to and fro motion of the pressing roller may be produced by means of a crank and lever. The under roller may be heated; and the apparatus may be used for “scouring or fulling woollen or other cloths,” by placing the under roller in a trough containing soap and water or other such fluid at a proper temperature.

[Printed, 8*d*. See Repertory of Arts, vol. 17 (*enlarged series*), p. 275; London Journal (*Newton's*), vol. 41 (*conjoined series*), p. 434; Mechanics' Magazine, vol. 54, p. 218; Patent Journal, vol. 10, p. 277.]

A.D. 1850, September 19.—N° 13,257.

CHRISTEN, Henri Jeremy.—“ Improvements in cylinder “ printing.” “This invention consists of so printing with cylinders having the whole of their surfaces engraved as to leave “ blank or unprinted spaces on the printed fabrics according to “ any shape or design.” An endless or other fabric passes along with the piece to be printed between it and the bowl. The fabric may be made by cementing four thicknesses of calico by means of gutta percha cement, with a surface of woollen cloth also cemented. The pattern or parts which are not to be printed are cut out of the fabric, so that no pressure is given by the printing cylinder at those parts.

[Printed, 5*d*. See Repertory of Arts, vol. 17 (*enlarged series*), p. 274; London Journal (*Newton's*), vol. 38 (*conjoined series*), p. 261; Mechanics' Magazine, vol. 54, p. 258.]

A.D. 1850, September 19.—N° 13,261.

NASMYTH, James, and BARTON, John.—" Improvements in
" machinery or apparatus for printing calicos and other surfaces,
" and also in the manufacture of copper or other metallic rollers
" to be employed therein, and in the machinery or apparatus con-
" nected with such manufacture."

These improvements consist, first, "in machinery or apparatus
" for perfecting or ensuring of the fitting or coincidence of the
" clearing edge of the 'doctor,' and the printing surface of roller
" or cylinder employed in such or similar machines, by the opera-
" tion of certain mechanical means and arrangements," "and
" consist in the employment of two or more revolving circular
" whetstones held or mounted in adjustable arms, by which they
" may be made to act on the two sides of the edge of the 'doctor'
" at once for the purpose of giving to them any required definite
" bevil; also the mode of giving to the 'doctor,' whilst subject
" to the action of the above-named revolving circular whetstones,
" the required definite backwards and forwards motion." The doctor is firmly held in a reciprocating slide, and the revolving whetstones which act on its edge, as it passes and repasses, have also a revolving movement towards each other by means of which any required peculiar bevil may be given to either side of the edge.

" Secondly, in the employment and application of percussion
" or percussive force as an agent in the consolidation of molten
" copper or other suitable metal whilst in the mould into which
" it has been poured, for the purpose of casting or forming
" such printing rollers or cylinders; and, also, for the above
" special purpose, the employment, application, or use of steam,
" acting directly after the manner of the 'steam hammer' for the

" purpose of raising up to the required height the mass of iron or " other material, by the fall of which we obtain the percussive " force employed in such improved manufacture of copper or other " metallic printing rollers or cylinders."

[Printed, 10*d*. See Mechanics' Magazine, vol. 54, p. p. 257; Patent Journal, vol. 11, p. 3.]

A.D. 1850, September 26.—N° 13,263.

NEWTON, Alfred Vincent.—(A communication.)—"Improvements in dyeing yarn, and in manufacturing certain woven " fabrics." The first part of this invention consists in improvements " in weaving two and three ply ingrain carpets by the combi" nation of parti-coloured warp and weft."

"The second part of the invention refers to the operation of " dyeing yarn." The "yarns to be parti-coloured are rolled " around two rollers on reels, either fluted or made of wire, and " placed one at each end of a frame, the journals of either one or " both of the said reels working in slides connected with the frame. " One or any number of these reel frames are then suspended to a " vertically sliding frame, operated by appropriate machinery, by " means of which the reels, with the yarns on them, can be let " down into a vat containing the dyeing or colouring liquor; the " depth of immersion being indicated by a scale, either marked on " or suspended to the frame of the reels. After the required im" mersion, the reel frames are removed and either reversed to im" merse the other end, or the reels are turned to bring another " part of the yarns in the proper position, depending on the pat" tern to be produced, and then again dipped in the same or " another color. After the yarn has been immersed, the immersed " reel is drawn up by the slide, that the cords or flutes of the reel " may not be in contact with the yarn, which contact would have " the effect of preventing the free access of the dye liquor to the " entire surface of the yarn, and thus leave an imperfect color."

[Printed, 7*d*. See London Journal (*Newton's*), vol. 38 (*conjoined series*), p. 450; Mechanics' Magazine, vol. 54, p. 259.]

A.D. 1850, September 28.—N° 13,266.

BURCH, Joseph.—" Improvements in printing terry and pile " carpets, woollen, silk, and other materials." The Patentee claims, first, "a mode of drilling blocks and rollers for patterns,

“ and in applying relief surfaces to such blocks.” The surface to be drilled, and a corresponding surface with the pattern delineated upon it, are placed on a bed which can be moved backwards and forwards by a screw. Over the pattern is placed a pointer, and over the surface to be drilled a revolving drill. These work in unison and are caused to traverse to and fro. By moving the pointer over the pattern, the drill moves simultaneously over the block or other surface, and by depressing it is caused to bore holes corresponding to the pattern. Into these holes are driven pegs which form the printing surface.

“ Secondly, the printing of fabrics by means of blocks supplied “ with colour, as herein explained.” The fabric to be printed is caused to pass under the printing table instead of over it. The block is also reversed and being submerged in the colour trough underneath is caused to rise perpendicularly, and being thus copiously furnished with colour to give its impression to the under surface of the thick fabric.

“ Thirdly, the means of obtaining different colors on to blocks “ composed of numerous similar parts, by means of plates and apparatus.” There are two sets of pins or pegs arrayed perpendicularly to each other in two frames; the upper set form the pressers and the under the printing surface. Both sets are retained in their positions by spiral springs; between these is interposed a plate drilled with holes made to fit certain pegs. On the depression of the upper set of pegs those which coincide with the holes pass through them and depress the corresponding pegs of the lower set on to the surface of the first sieve. Another plate is then interposed and certain other of the pegs are depressed on to the second sieve, and so on till the whole pattern is furnished with colours. The sieves are then removed and the impression given by the action of a lever.

“ Fourthly, the mode of printing several colours at the same “ time from surfaces having distinct shallow chambers, each supplied with its particular colour.” These shallow chambers or divisions in the block are filled with separate colours by means of pipes underneath or directly from colour pots. The fabric to be printed, namely, terry and velvet carpets, rugs, &c., is laid on the surface and there pressed till the colours are absorbed.

“ Fifthly, the mode of producing the high lights or pale shades.” This may be effected by printing from a block furnished with "diluting fluid" upon parts of a pattern already printed on the fabric. "In some fabrics, pressure alone, without the reducing "fluid, by squeezing the colour from the surface, will reduce the "shades, and I also produce the same effect from surface rollers "by this method."

"Sixthly, the mode of bending typed-metal plates by employing "a friction plate." A thin steel plate is passed along with the type metal plate through between the bending roller and the frame or socket.

[Printed, 4*s.* 5*d.* See Mechanics' Magazine, vol. 54, p. 278; Patent Journal, vol. 11, p. 27.]

A.D. 1850, September 28.—N° 13,267.

CROSSLEY, Joseph, COLLIER, George, and HUDSON, James.—"Improvements in printing yarns for, and in weaving "carpets and other fabrics." This invention consists, first, in improvements "in machinery for printing yarns." The yarn to be printed is wound on a drum, and printed across the threads by means of a colour roller, which revolves in a colour trough, supported in a carriage, which is caused to traverse to and fro. Mechanical means are employed for winding the yarn regularly on the surface of the drum; also for stopping the drum to take up broken threads. At one side of the drum is a ratchet, each tooth of which represents the space on the surface of the drum which is to receive colour at one time. The peripheries of "the color rollers are covered with "felt or felted fabric, and the edges thereof are protected with "sides of metal." The supply of colour is moderated by means of doctors, and the requisite pressure is given by means of springs, acted on by screw nuts. When the colour is applied to the threads it is spread, scraped, or equalized by means of rollers covered with felt, or by means of scrapers or spreaders.

Secondly, consists in improvements in machinery for weaving carpets and other fabrics.

[Printed, 8*s.* 10*d.* See Mechanics' Magazine, vol. 54, p. 277; Patent Journal, vol. 12, p. 4.]

A.D. 1850, October 10.—N° 13,277.

WOOD, William.—"Improvements in the manufacture of car- "pets and other fabrics." These improvements are, "firstly, in "weaving terry fabrics in power looms." "Secondly, in the

" mode of introducing and withdrawing wires in weaving terry " fabrics by power." "Thirdly, of my invention to power looms " for weaving carpets and other terry fabrics by power." And, " fourthly, in the mode of printing fabrics by composing colours " into patterns, and fixing the same by steam." "This I do by " mixing colouring matter with suitable thickening material, " which, when cold, sets more or less hard, and when exposed to " steam will dissolve. This mixture I make into sheets, of any " required thickness, which I cut into strips as broad as the sheets " are thick, so as to form squares. These strips are then to be " placed in layers on each other, with sufficient moisture to cause " them to adhere together, selecting such coloured strips as may " be shown by a pattern drawn on design paper, until the block " produced thereby completes the pattern, or the part thereof " desired. From one end of such block I cut a sheet, and place it " on to the fabric to be printed therewith, and I then introduce " the fabric into a box or chamber to be steamed, by which the " gelatine will be dissolved and the colours fixed to the fabric."

[Printed, 2*s*. 1*d*. See Mechanics' Magazine, vol. 54, p. 317; Patent Journal, vol. 11, p. 40.]

A.D. 1850, October 17.—N° 13,287.

JOHNSON, John Robert.—" Improvements in fixing colours " on fabrics made of cotton or other fibre." These improvements consist, " first, in a mode of isolating or extracting the coloring matter " of madder and other rubiaceous plants, such as munjeet, so as " to render the colour fit and profitable to be fixed upon fabrics by " direct application." The madder is first converted into garancine, and when the acid employed in its manufacture has been washed away, the garancine still on the filter is treated with hot water, which has the double property of dissolving the colouring matter while hot, and of depositing it again on cooling. The deposited colouring matter is then collected and dissolved in a solution of potash or ammonia alum, with free muriatic or sulphuric acid. Several earthy and saline solutions, with free sulphuric or muriatic acid, have also the property of dissolving this colouring matter. " The extract of madder so prepared may be fixed upon " fabrics by printing it upon cloth prepared with an aluminous " *mordant*, and steaming, as by the process of Fauquet."

“Secondly, in the mode of fixing alizarine, the colouring matter “ of madder, by whatever mode it be obtained, by mixing it with “ the mordaunt, and applying them simultaneously upon the “ fabric, prepared as hereafter described, and steaming to fix them “ there.” This is effected by preparing the cloth with a “small “ quantity of oleaginous matter.” For this purpose a mixture may be made of white soap, 5 lbs.; Gallipoli oil, 5 lbs; water, 10 gallons. Dissolve the soap and add the oil. Pad the cloth in this mixture, dry it, and age in a warm room for 48 hours; then rince in water containing about 1 lb. carbonate of soda to 20 gallons of water; wash and dry. The mordant used may be as follows:—Extract in paste, ten parts by weight; pure acetate of alumina at 25° T., one part; gum tragacanth to thicken, or salts of iron may be substituted. “When the colour is printed, the fabric is hung “ for a few hours, steamed for half an hour at the lowest possible “ pressure, then cooled and washed off in water containing about “ $\frac{1}{1000}$ of its weight of an alkaline carbonate or phosphate.”

“Thirdly, consists in a new method of operating when the dyeing process is used for fixing the colouring matter of madder.” The madder may be steeped for several hours in water, at about 120° F., and the cloth dyed with about 25 per cent. less of this madder than is commonly used. The dyed piece is cleared in the manner practised for clearing the whites of garancine work, namely, by passing it through a weak solution of any bleaching preparation, such as hypochlorite of soda, and drying it over the “tins” of the drying machine. By this process clear whites will be produced without the use of soap or bran. This process is also applied to the clearing of goods dyed with spent madder, as prepared according to Steiner's Patent, June 2, 1832, to which is added, while in the dye vessel, sufficient of an alkaline carbonate to render the dye liquor slightly red.

The Patentee also claims “the application of fermented madder, “ to economise time, fuel, and labour, in the dyeing process.”

“Lastly, in a new mode of obtaining a topical colour from “ alkanet root (anchusa tinctoria.)” “I digest the root in oil of “ turpentine, naptha, or other cheap essential oil, and to the solution containing the coloring matter I add about one-eighth of its “ volume of a saturated solution of caustic barita, or a mixture of “ salt of baryta or other earth, and caustic ammonia, and I agitate “ for ten or fifteen minutes.” The precipitate thereby formed is then treated with acetic acid, to neutralize the earth, or with acetic acid and mordaunt, and when applied to cloth prepared with alumina or oleaginous matter, will give a fine fast purple.

[Printed, 4*d*. See Repertory of Arts, vol. 17 (*enlarged series*), p. 287; Mechanics' Magazine, vol. 54, p. 356; Patent Journal, vol. 11, p. 52.]

A.D. 1850, October 24.—N° 13,294.

BROWNE, Thomas Beale.—" Improvements in weaving and " preparing fibrous materials and staining or printing fabrics." These improvements are, " firstly, in weaving, whereby I am enabled " to weave double or treble widths of fabric in looms of less width " than the fabric woven." " Secondly, in an improved beat up " motion for the batten of the loom." " Thirdly, in an arrangement of flax-dressing machinery in breaking, scutching, and " heckling." And, " fourthly, as regards staining and printing " fabrics, I claim the use of the travelling beds on which the forms " or blocks are secured, and which are carried round a centre on " rails, in such a manner that during the printing operation the " beds must always travel in a straight line. I also claim the " apparatus, or any modification thereof, for feeding in the sheets " of paper. I claim this apparatus, whether employed in combination with the printing apparatus herein shown, or as applied " to any other printing machine." The travelling beds on which the blocks are secured are placed on the ends of arms which revolve horizontally round a centre. Under the travelling beds are placed " antifriction wheels," which bear up the beds and blocks as they pass under the impressing cylinders. The antifriction wheels run on a circularly formed railway, supported by pillars or masonry, and from the form of this railway the travelling beds and blocks are kept square with the impressing cylinders at the moment of contact; the blocks are supplied with colour by means of colour rollers. The paper or fabric to be printed is placed on a sloping table, and sheet after sheet is brushed forward to the printing apparatus by means of a revolving cylinder or brush. To this brush is attached, by means of two levers, another small roller, which runs on the surface of the paper as it passes on to the machine, and throws the feeding brush out and in gear, as required.

[Printed, 1*s*. 7*d*. See London Journal (*Newton's*), vol. 41 (*conjoined series*), p. 1; Mechanics' Magazine, vol. 54, p. 358; Patent Journal, vol. 11. p. 109.]

A.D. 1850, October 24.—N° 13,296.

MERCER, John.—" Improvements in the preparation of cotton " and other fabrics and fibrous materials."

This invention consists in "the subjection of cotton, linen, and " other vegetable fibrous material either in the fibre or any stage " of its manufacture, either alone or mixed with silk, woollen, or " other animal fibrous material, to the action of caustic soda or " caustic potash, dilute sulphuric acid, or solution of chloride of " zinc, of a temperature and strength sufficient to produce the " new effects, and give to them the new properties as described, " either by padding, printing or steeping, immersion, or any other " mode of application." The most remarkable of the new effects and new properties referred to above are as follows:—" The fabric " acted on will have shrunk in its length and breadth, or have " become less in its external dimensions, but thicker and closer, " so that by the chemical action of caustic soda or potash, I " produce on cotton and other vegetable fabrics and fibres effects " somewhat analagous to that which is produced on woollen by " the process of fulling or milling. It will have acquired greater " strength and firmness, each fibre requiring greater force to " break it. It will also have become heavier than it was before it " was acted on by the alkali, if in both cases it be weighed at the " temperature of sixty degrees Fahrenheit, or under. It will have " acquired greatly augmented and improved powers of receiving " colors in printing and dyeing." The caustic, soda, or potash may be used of a strength equal to from 70° to 40° T, or even less, at the temperature of 60° F. or under. After the soda the fabric may be passed through dilute sulphuric acid and then washed. When sulphuric acid is employed it should be previously diluted to 105° T. or under. When chloride of zinc is employed the solution should stand at 145° T., and at from 150° to 160° F.

[Printed, 3*d*. See Repertory of Arts, vol. 17 (*enlarged series*), p. 353; London Journal (*Newton's*), vol. 38 (*conjoined series*), p. 456; Mechanics' Magazine, vol. 54, p. 358; Artizan, vol. 9, p. 184; Patent Journal, vol. 11, p. 110.]

A.D. 1850, October 24.—N° 13,300.

JACOBS, Samuel.—" Improvements in printing on woollen, " cotton, paper, and other substances parts of which improve-

" ments are applicable also to the purposes of coloring, shading, " tinting, or varnishing such substances." These improvements consist, first, of a new "color trough or server," which is of a circular form, fitting on to the roller, and divided by partitions into several compartments.

Secondly, the colour trough may be made to traverse from side to side, and by means of cranked rails, to descend and relieve itself from contact with the roller when desired, whereby "cross " colors, tints, and shades" may be applied.

Thirdly, a furnishing roller, supplied with colours from the above divided trough, may be applied to a table or sieve, from which the hand block may be supplied with tinted colours. A roller covered with "fine hairs" may be caused to revolve in the colour-box supplied with "size or varnish," and thereby size or varnish the fabric. The Patentee also describes modes of "stopping the color " cells," and for "forcing the color on to the server," and of " regulating the flow of color" by means of "screws," " spring " valves," and "stoppers" suitably adjusted. Also a mode of covering the cells to render them air-tight, so that the colour will only flow when required; a fountain trough or pot for a similar purpose; a mode of collecting overweight of colour; a mode of transferring the colour from one roller to another, whereby more or less shading and tinting will result; a mode of carrying the colour to supply the roller by means of belts; a mode of providing a constant supply of colour to the cells of the colour trough; a mode of graining by applying a comb to the surface of the furnishing roller; a mode of embossing by causing one roller with the pattern in relief to work against another with the pattern indented; an apparatus "applicable to the preparation of wood " for wood printing;" a mode of serving size and varnish by means of a hollow heated "polished glass cylinder;" a mill for grinding colours or pigments.

Also an apparatus for printing through a "perforated cylinder." The colour is pressed through the perforations by means of a furnishing roller working inside. The mode of forming the furnishing rollers of the shape of "segments," whereby two or more in supplying colour to the transmitting roller will apply their separate colours to different parts of its surface; the mode of supplying colour to the furnishing roller by means of "pegs or " pins;" an apparatus for printing called "the color shuttle," which consists of a traversing frame carrying the colour troug and printing roller; an apparatus for forcing and regulating the supply of the colour from the colour cisterns and increasing the weight on the colour forcers or pressers.

The Patentee further describes his mode of arranging round a large bowl, many sets of printing rollers, furnishing rollers, and colour troughs; and a mode of arranging two single coloured machines so that one will print the upper and the other the under side of the fabric; also a mode of feeding rollers with cards, envelopes, or other pieces of cut material when piled for printing; a machine "for performing the operation of lithographic, fabergraphic, thread-graphic, and verergraphic printing" by means of a stone cylinder, and also by a travelling cloth or band on which is the drawing to be printed from; an anti-damp composition composed of oil, resin, or resinous gum and gutta percha; an anti-oil composition of glue and treacle, to be applied to cotton, linen, &c.; a metal varnish composed of mineral naphtha, resin, resinous gums, and gutta percha.

Also the mode of printing by moveable types on cylinders or axles, and the mode of fastening the type; and, lastly, a "wheel "dealer" with catches or cross arms, with "springs under the "tail end to push the material forward to be printed."

[Printed, 3s. 10d. See Mechanics' Magazine, vol. 54, p. 359; Practical Mechanics' Journal, vol. 5, pp. 32 and 124; Patent Journal, vol. 12, p. 47.]

A.D. 1850, November 2.—N° 13,304.

WARMONT, Victor Emile.—"Improvements in dyeing wool "and other fibrous materials and fabrics." The apparatus employed for this purpose is composed of "small blades of wood, "or other suitable material." "Upon the front of the blades are "affixed pieces of cloth or felt, or other suitable material. The "blades being thus prepared, are to be connected together by "means of rods (or otherwise) which pass through them, and so "arranged as to leave spaces between them; the arrangement and "extent of each of these spaces may be varied as required. The "blades thus joined together form a series of surfaces retained "at determined distances apart. Upon these blades, thus prepared, the coloring matter is to be placed; the skein of wool or "of other fibre or fabric intended to be dyed, being previously "moistened, is then stretched thereon, another frame of blades of

" a similar description, having the same colors applied thereon " as in the previous ones, is then placed thereon, so that the " surface of the blades both of the under and the upper, and the " spaces between them, coincide. By the application of the " apparatus, the parts of the wool or other fibre and fabrics which " should receive the shades of colour from the bath into which the " apparatus is introduced, will be in the spaces which separate the " blades, and those parts which are shut between the blades will " receive all the tints upon the blades." The wools or other " fibres or fabrics thus arranged, and the framing of the blades " being well secured together, they are to be immersed in the bath " and allowed to remain therein half an hour or longer, according " to the colours required to be fixed. In removing the apparatus " from the bath, it should be turned over upon one face, and cold " water is to thrown over the whole."

[Printed, 5*d*. See Mechanics' Magazine, vol. 54, p. 377; Patent Journal, vol. 11, p. 61; Repertory of Arts, vol. 18 (*enlarged series*), p. 143; London Journal (*Newton's*), vol. 39 (*conjoined series*), p. 70.]

A.D. 1850, November 2.—N° 13,310.

MATHER, William and Colin, and KASELOWSKY, Ferdinand.—" Improvements in machinery for washing, steaming, " dyeing, and finishing cotton, linen, and woollen fabrics." The apparatus for " washing," first described, consists of a four sided winch, to which a flywheel is attached. This winch, supported by a suitable framing, is placed over a cistern containing water and in which the fabric to be washed is placed. The end of the piece is put over the winch, which, being caused to rotate, draws the piece up from the cistern on one side, and drops it on the other side on to one of the faces of a hexagon block, to which an intermittent rotatory motion is given by means of a lever and ratchet wheel. When a certain quantity of the piece has accumulated on the face of the hexagon block, it is caused to rotate one-sixth of its circumference, and in so doing, it causes another block of a square form, suspended by rods, and pressing face to face on the hexagon block, also to rotate, whereby the accumulated cloth passes between them and is beat and pressed by the friction and weight of the square block, and afterwards is delivered into the cistern of water beneath. By placing separating pins on the rising side of the apparatus, the pieces, when attached end to end, may be washed on the continuous system.

The apparatus for "washing," described secondly, consists of a long cistern divided into several compartments containing rollers, over and under which, the fabric is caused to pass continuously "while in its full breadth." Each compartment is provided with two partitions placed close to the divisions of the compartments, thereby forming narrow slits down and up which the fabric passes during its progress. Between the partitions plungers are fitted, which on being worked up and down by levers, cause the water to flow through the narrow apertures, and thereby wash and "stream" the fabrics.

"The third part of these improvements applies to the cham- " bers used for steaming printed goods, and consists in obtaining " motive-power from the steam leaving such chamber [through " applying it to a small steam engine or otherwise] for the " purpose of moving the rollers or rails on which the cloth is " hanging while exposed to the steam."

The fourth part of these improvements consists in placing " steam chests for the purpose of drying fabrics" "so close to " each other as to form narrow flues or passages, through which " currents of heated air are generated and caused to flow against " the cloth."

These improvements consist, fifthly, of a machine to be worked by steam for producing the finish hitherto produced by the "chest " mangle and beatling mill." This apparatus consists of a stout frame work, having two parallel tables, the upper one of which is stationary, and the under one moveable up and down by means of an hydraulic ram. Between the tables a strong plate is caused to traverse. "The cloth to be finished is wound on " rollers which are placed one under the traversing plate, and " the other above it." By tightening up the lower table, and traversing the plate, the rollers are caused to roll forwards and backwards, and thereby produce the proper finish. The "beatling " finish" requires the surfaces of the tables and traversing plate to have projections on them resembling "the butt ends of the " beatles."

Lastly, "in connexion with washing and finishing machinery," the Patentees claim "the construction of cast iron gudgeon plates " to secure the ends of wooden rollers."

[Printed, 9*d*. See Mechanics' Magazine, vol. 24, p. 379; Patent Journal vol. 11, pp. 95 and 112.]

A.D. 1850, November 7.—N° 13,326.

LUCAS, Robert.—" Improvements in telegraphic and printing " apparatus." These improvements consist in " the application " of gutta percha, either separately or mixed with other ingre- " dients (such as caoutchouc, wood, saw-dust, sulphur, or such " other ingredients as are now mixed with gutta percha in the " manufacture of various articles), to form the figures, surface of, " or for a cylinder for printing-machines to transmit impressions " of ink or other colouring matters used in printing on to fabrics." " Cylinders made of gutta percha, wood, iron, or any other " suitable material may be covered with a sheet of gutta percha, " which has a pattern projecting above its general surface, form- " ing either letters or other figures, by which, books, newspapers, " furniture papers, calicoes, and other fabrics may be printed, " when such cylinder is substituted in any of the well known " machines used in printing for those which are now used."

[Printed, 3*d*. See Mechanics' Magazine, vol. 54, p. 398.]

A.D. 1850, November 14.—N° 13,342.

SWINDELLS, John.—" Improvements in obtaining products " from ores and other matters containing metals, and in the " preparation and application of such products for the purposes " of bleaching, printing, dyeing, and colour making." These improvements consist " firstly, in the extraction of copper and " silver from their ores by the use of a solution of ammonia or " salts containing ammonia." The ammonia is added to the roasted ores by repeated pumpings; when saturated, the silver and copper may be separated by the usual means, or by hydrochloric acid and hydrosulphuric acid respectively.

" Secondly, in the improved method of extracting zinc from " the native sulphuret of zinc by the process of roasting the ores " with common salt, or any other articles or substance containing " muriatic acid." The native sulphuret of zinc being mixed with salt in preference, is roasted by a slow oxidising heat till all the sulphur is converted into sulphuric acid. The products soluble in water, namely, " sulphate of soda, muriate of zinc, and muriate " of iron," are separated and smelted in the usual way.

" Thirdly, the process of forming chromic salts by operating on " the ores mixed with muriatic salts subjected to the action of "steam." If it is desired that the product should contain soda as the alkali, then take of pulverized ore and common salt equal weights, and expose the mixture in a reverberating furnace to a full red or even white heat, applying at the same time a jet of steam at a very elevated temperature, and stirring the mixture till the effect required is produced. The product, chromate of soda, is withdrawn from the furnace and treated in the usual way, as in the manufacture of chromic or bichromic salts.

Fourthly and fifthly, the use or application of pure bichromate of soda (instead of the bichromate of potash, hitherto in use); also the chlorochromate of soda, potash, or lime (as new compounds not before used), for the purpose of producing colour, or raising vegetable or metallic colours, or discharging colours, or bleaching.

" Sixthly, the use of the compound salt of chromate of soda " and lime, or chromate of potash and lime, for the uses aforesaid, " being a more economical and useful salt for producing orange " colors than those heretofore in use."

[Printed, 3*d*. See Repertory of Arts, vol. 18 (*enlarged series*), p. 153; London Journal (*Newton's*), vol. 39 (*conjoined series*), p. 342; Mechanics' Magazine, vol. 54, p. 415; Practical Mechanics' Journal, vol. 4, p. 133; Patent Journal, vol. 11, p. 85.]

A.D. 1850, November 13.—Nº 13,372.

CHABERT, JOSEPH EUGÉNE.—" Improvements in machinery " for washing and drying linen and other fabrics." The apparatus for "washing" may consist " of a vessel in which the " water and washing materials are placed. In this vessel is " arranged a frame [which may be variously formed], consisting " of a series of arms, made of wood or other suitable material, " which frame has a movement given to it [to and fro] by a " steam-engine or other power." " On to which frame is placed " the linen to be washed, and which is to be kept in its position " by bands of india-rubber or other suitable material being placed " across the frame." Or the linen may be placed in "small " compartments or cases made of wire gauze" suitably attached to a frame, and to which a "circular" motion through the washing liquid may be imparted.

The apparatus by which "the water is pressed out of the linen" consists of a vessel with a suitable false bottom on which is placed the wet linen; over the linen is a "suitable cover which acts as

" a piston." Steam being first admitted into the vessel under the false bottom, and then condensed, a vacuum is thereby produced, which causes the piston to descend, and press on the linen with a force sufficient to express the water.

The Patentee's mode of drying linen may consist in passing the linen over three cylinders filled with steam, placed vertically, and to which pressure may be given; or by passing the linen round one larger cylinder, on which are caused to press four rollers at opposite points. "The same vessels may be used for " rinsing in the linen, by causing the water to be run off."

[Printed, 8*d*. See Repertory of Arts, vol. 18 (*enlarged series*), p. 145; Mechanics' Magazine, vol. 54, p. 459; Patent Journal, vol. 11, p. 108.]

A.D. 1850, December 12.—N° 13,404.

MARNAS, Jean Aime.—" Improvements in the manufacture " of indigo," consist in a "better and more economical process or " method of preparing the saxony blue, and of extracting easily, " economically, and entirely, the indigo blue from the dissolving " and washing waters produced in the manufacture of indigo, " carmine, and other soluble blues." Instead of using skeins or woollen stuffs for the purpose of withdrawing from solution the indigo of the sulphate of indigo, the Patentee employs " waste " wool," and particularly " flock wool " or "shearings of cloth," and other woollen stuffs, which take up a large quantity of the the colour, and yield it again to the alkaline solution more readily.

[Printed, 3*d*. See Repertory of Arts, vol. 18 (*enlarged series*), p. 116; London Journal (*Newton's*), vol. 39 (*conjoined series*), p. 71; Mechanics' Magazine, vol. 54, p. 499; Patent Journal, vol. 11, p. 133.]

A.D. 1850, December 27.—N° 13,431.

MENOTTI, Celeste.—" Certain chemical compositions for rendering cotton, linen, woollen, silk, and other fabrics impervious to " water, and fixing colours in dyeing." This invention consists in " processes for producing a substance which I call hydrofugine, " and the application of the same to rendering silk, cotton, linen, " woollen, and other fabrics impervious to water, and pervious to " air." Oleic acid, stearic, or margaric acids, or soap, are dissolved in water and added to alchohol at 30° Cartier's aerometer, to which is added in solution sulphate of alumina, sulphate of alumina and potash, or alumina and ammonia, or sulphate of iron, copper, or chloride of tin. The salt formed is collected on a filter and pressed, and may be dried. On applying it to a fabric it must be dissolved in a suitable solvent. The fabric is immersed in this solution twice, and dried without wringing.

"The fixing colours in dyeing" is disclaimed, June 27, 1851.

[Printed, 4*d*. See Mechanics' Magazine, vol. 55, p. 17; Patent Journal, vol. 11, p. 161.]

A.D. 1851, January 11.—N° 13,445.

MELVILLE, WILLIAM.—"Improvements in manufacturing and "printing carpets and other fabrics."

The first eight claims in this invention are for improvements in weaving carpets and various other fabrics.

"Ninth. The system or mode of printing devices or patterns on "yarn or woven fabrics, by means of surface rollers revolving or "dipping into color troughs, or supplied by a feed roller revolving "in such color troughs."

"Tenth. The system or mode of constructing printing rollers, "with the periphery formed and adjusted in sections."

"Eleventh. The application and use of wire cloth or other per"meable fabric in printing yarns." "This wire cloth is passed "over the printing cylinders, with the yarn to be printed on its "upper surface, so that the cylinders, instead of impressing colour "directly on the yarn itself, deliver it against the lower surface of "the permeable fabric, through which it passes to the yarn."

"Twelfth. The system or mode of holding up the yarn, and "preserving a uniform tension upon it by the application of a "separate fabric on one or both sides." The wire cloth is placed under the yarn, as above, and an endless waterproof blanket above it, so that the yarn is enclosed between them.

"Thirteenth. The system or mode of printing yarns by apply"ing the color through a permeable material, as herein-before "described."

"Fourteenth. The system or mode of steaming yarn or piece "goods directly, as delivered from the printing machine, by "passing the yarn in contact with a steaming apparatus (a steam "jet or perforated pipe)."

"Fifteenth. The system or mode of printing woven fabrics "without the use of an upper impression roller." The "ten"sional pressure" of the fabric to be printed being substituted, "Sixteenth. The system or mode of printing textile materials "or fabrics without a surface blanket, by the use of an upper or "counter-pressure pattern roller," "being formed with a pattern "or device upon it to correspond to the printing roller."

"Seventeenth. The system or mode of producing or forming the "pattern printing surface of the rollers." A roller is covered with sheet gutta percha, over which is placed a layer of flannel, out of which is cut the various parts of the pattern, and then attached in their proper positions to the surfaces of printing rollers.

[Printed, 1*s.* 9*d.* See Mechanics' Magazine, vol. 55, p. 74; Practical Mechanics' Journal, vol. 4, p. 109; Patent Journal, vol. 11, p. 194.]

A.D. 1851, January 21.—N° 13,467.

SIEVIER, Robert William.—"Improvements in weaving and "printing, or staining textile goods or fabrics."

The first and second claims in this specification are for improvements in "forming the looped surface of a looped fabric," "and for cutting the loops when a cut pile fabric is required."

Third. Consists in the "general arrangement of the machinery "or apparatus, and also the mode of printing or staining warps "or fabrics; particularly the use of plates perforated to correspond with the different shades of the pattern." Plates made of thin metal, gutta percha, or of other impervious material perforated with the pattern are placed in succession on the yarn spread on a table, and the different colours rubbed in by a brush. The yarn thus printed is passed successively into a heated box to be dried, and then into a box supplied with steam to be steamed.

[Printed, 1*s.* 8*d.* See London Journal (*Newton's*), vol. 41 (*conjoined series*), p. 81; Mechanics' Magazine, vol. 55, p. 98; Patent Journal, vol. 11, p. 215.]

A.D. 1851, January 16.—N° 13,453.

BUCHHOLZ, Gustav Adolph.—"Improvements in printing, "and in the manufacture of printing apparatus, and also in "folding and cutting apparatus." These improvements consist, first, in making printing rollers of gutta percha. A thin sheet or cylinder of gutta percha, with the pattern on the inner side, is placed within a cylinder; another sheet or cylinder, plain, of gutta percha, is placed within the former cylinder, and a hollow metallic cylinder or core, capable of being heated or cooled by steam or water, is placed within it, leaving a space between them; into this space is forced soft heated gutta percha till it is filled, when the heat and pressure combined will cause it to soften the plain cylinder of gutta percha, adhere to it, and press it into the figured surface of the first cylinder, thereby stereotyping it, and producing a finished roller.

Secondly. Consists of a printing apparatus, whereby both sides of two or more sheets of paper may be printed as they pass through the machine. In the drawings given there is shown a surface printing roller, having a small bowl or pressing roller placed over it; and another bowl placed under it, to which an upward pressure is given. This roller, the centre one of three printing rollers, may therefore print at one time from its lower as well as from its upper surface, being supplied at each side with a set of suitable colour furnishing rollers. In the same framing which carries the above set of rollers are other two printing rollers with accompanying bowls placed on each side of and parallel with the first set; the upper surface of one of these printing rollers is level with the under surface of the first roller, so that a piece of paper progressing forward from left to right will be printed first on its under surface and then on its upper surface; and another sheet passing the reverse way will be printed by the third cylinder placed so that its under surface, the printing surface, will be on the same plane with the top of the first or centre roller, so that it will be printed first on one side and then on the other.

Thirdly. Relates to a "folding apparatus." The table on which the paper is to be folded may be suitably moved up and down to accommodate its surface to the height of the folded paper. At each end of the table is placed a valve on curved slides, which presses on the table by means of springs. The end of the paper being placed under one of these valves and held there, a plate supported on the end of two levers, one on each side of the table, and properly actuated, carries the sheet over to the other end of the table, and pushes the fold under the opposite valve, where it is held; another plate, also supported by two levers, then carries the sheet back, and pushes the fold under the first valve, and so on till the sheet is entirely folded. These pairs of levers are actuated and preserved in their relative positions by their ends working in the forks of an oscillating lever or pendulum placed above.

[Printed, 6*s*. 7*d*. See Mechanics' Magazine, vol. 55, p. 77; Patent Journal vol. 11, p. 263.]

A.D. 1851, February 3.—N° 13,490.

ALLIOTT, **Alexander**.—"Improvements in cleaning, dyeing, "and drying machines, and in machinery to be used in sugar, "soap, metal, and color manufacturing."

These improvements relate, firstly, to a "centrifugal machine," by which yarns may be "dyed" therein of "different colors." The yarns to be dyed are placed round the inside of the cylinder of a hydro-extractor; moveable boxes, perforated at the ends, and properly secured from shifting sideways, "are placed in the extractor, "and are moved up against the yarn, and the machine set in "motion. When it attains a suitable speed the liquid with which "it is desired to operate upon the yarn" is introduced, which, flowing through the perforations in the boxes, dyes the yarns only at these parts. The liquid may be pumped up and passed through the yarn as often as desired. By turning the boxes round on the dome and applying different liquors various colours may be obtained on the same yarn.

Secondly. To "centrifugal cleaning and drying machines," and consist, firstly, in introducing a separate moveable case or cylinder into the usual cylinder of the hydro-extractor. "The advantage "of this improvement consists in the ease with which the [inner] "cylinder can be lifted out and emptied." Or the machine may be emptied with facility through apertures in the bottom of the cylinder, which are properly secured by spring bolts acting on a moveable flange. The machine may also be provided with "perforated projecting channels" inside, which will draw off the water from the inner surface, when such "substances as starch, "low sugars, pigments, and other materials which have a tendency "to force the liquid inwards," are operated upon. This invention further relates to improvements in the manufacture of "sugar" "soap," and "metals."

[Printed, 10*d*. See Mechanics' Magazine, vol. 55, pp. 136 and 161; Patent Journal, vol. 11, p. 239.]

A.D. 1851, February 24.—N° 13,523.

WOOD, **Peter**.—"Improvements in printing, staining, figuring, "and ornamenting woven and textile fabrics, wood, leather, or any "other material, substance, or composition, and in machinery and "apparatus employed therein." Consist, "firstly, in the printing

" staining, figuring, and ornamenting woven and textile fabrics, " &c., by the use of metals in a precipitate or finely divided state, " mixed with starch or other thickening matter, and the finishing " of such surfaces." The metal employed is in a precipitated state, mixed with boiled starch and bees' wax, and printed by the ordinary modes of printing, or applied by a brush, or by drawing the fabric through the mixture, or by "my improved machine." The finishing is performed by calendering or embossing, or by pressure.

"Secondly, in the machinery or apparatus constructed and ap- " plied in the manner and for the purposes above described." The machinery consists of a printing roller which is supplied with the metal colour by an endless sieve. The fabric passes forward into a box, and under a perforated cylinder containing metal, in which is also a revolving brush to brush through the holes an additional quantity of metal when required. The fabric then passes over a beater, then over a revolving brush, and finally over steam drums to be dried.

[Printed, 9*d*. See Mechanics' Magazine, vol. 55, p. 159.]

A.D. 1851, March 24.—N° 13,567.

SIX, HENRI, and SIX, ALEXANDER.—" Improvements in bleach- " ing flax and hemp." This invention consists, "first, in sub- " jecting flax and hemp in the straw, when once placed in the vats, " to all the chemical operations which are usually employed for " obtaining the different degrees of whiteness, without changing " their position until the bleaching is entirely completed." "The " flax may be agitated in the vats, or withdrawn therefrom, accord- " ing as it may be deemed expedient." Secondly, in applying " the bleaching processes to flax which is partially divested of its " straw, and in that case we allow the straw to remain on to the " height of eight inches more or less at the foot of the plant, " and we complete the peeling operation after the matters have " been bleached." Flax bleached in this manner makes little tow in combing. Thirdly, in the "use of hurdles for the bleaching of " flax, either partially or completely peeled, or after being combed." These hurdles and rods are intended to keep the flax open and in layers during bleaching to allow of the liquors easily permeating.

[Printed, 4*d*. See London Journal (*Newton's*), vol. 40 (*conjoined series*), p. 178; Mechanics' Magazine, vol. 55, p. 272; Patent Journal, vol. 12, p. 2.]

A.D. 1851, March 24.—N° 13,569.

CHEETHAM, James, Junior.—" Improvements in the manu-" facture of bleached, colored, or party-colored threads or yarns." The Patentee claims "the bleaching, and also dyeing, printing, or " otherwise coloring cotton between the process of carding and " that of spinning." "If desired, slubbings or rovings of cotton " in the ordinary grey state, and also wool, silk, or other fibrous " materials, may be combined with other slubbing, bleached, dyed, " or printed, according to my improvements, and be incorporated " therewith." "The cotton is to be prepared precisely in the " usual manner until it has passed the drawing operation. It is " then carried to a slubbing framing of ordinary construction, but " so modified in its relative speeds as to effect rather more twist " than is required for the usual subsequent operations." "The " slubbings thus prepared are reeled after the manner usually " adopted for dyeing, printing, or bleaching spun yarns. It will " generally be found advisable, however, to reel the slubbings two " or more together, but without twisting." "The material may " then be subjected to any of the ordinary operations whereby spun " yarns are bleached, dyed, printed, or otherwise colored." Instead of wringing out, the use of the hydro-extractor for dispelling the " moisture" is preferred. "The bleached, dyed, or printed slub-" bings having been thus produced may be worked into rovings " and spun into yarn after the usual manner in ordinary machines." " In producing party-coloured yarns I proceed in the manner " above described until the material has been bleached, dyed, or " printed, and passed through a slubbing machine without draw-" ing, in order to remove the superabundant twist. I then take " a number of the slubbings, according to the combination of " colors required, and by repeating the operations of drawing and " doubling, bring them into one roving suitable for being spun " into yarn which will be of the required party color."

[Printed, 3*d*. See London Journal (*Newton's*), vol. 40 (*conjoined series*), p. 184; Mechanics' Magazine, vol. 55, p. 276; Practical Mechanics' Journal, vol. 5, p. 46; Patent Journal, vol. 12, p. 26.]

A.D. 1851, April 26.—N° 13,607.

MILLIGAN, Robert.—" A new mode of ornamenting certain " cloth fabrics." This invention, as amended by disclaimer dated May 18, 1852, consists in "printing, in one or more shades or

" tints, any device or design on, upon, or over flock-printed colored " cloths or fabrics, composed or partly composed of alpaca wool, " with what is usually known by the name of zinc paint, or with " oil colours or pigment." The oil colours are prepared with oxide of zinc instead of oxide of lead, and may be tinted to the required shade by the addition of "pure color." Those parts of the fabric not covered by the flock may also be printed. The printing is performed by any of the usual modes.

[Printed, 4*d*. See Repertory of Arts, vol. 19 (*enlarged series*), p. 317, and p. 378 for Disclaimer; London Journal (*Newton's*), vol. 41 (*conjoined series*), p. 111; Mechanics' Magazine, vol. 55, p. 319; Patent Journal, vol. 12, p. 27.]

A.D. 1851, May 6.—N° 13,622.

DELEMER, ALEXIS.—" Improvements in the application of " colouring matters to linens, cottons, silks, woollens, and other " fabrics, and to linen, cotton, silk, woollen, and other weft, and " also in machinery or apparatus for these purposes." This invention consists of a mode " of printing, staining, or ornamenting " woven fabrics and yarns in such a manner that the colours are " softened down by a gradual decrease of shade from the centre of " the pattern to the edges thereof." This is accomplished, first, " by damping the goods to be printed by the ordinary padding " machine with water, or, if a coloured ground is required, with a " coloured liquid proper for the purpose; then by printing the " required pattern on the fabric or yarn," by means of blocks suitably actuated and caused to descend into the colour, then to move upwards against the fabric or yarn as it passes between the blocks and a plain surface or furnisher placed above the fabric, &c. After printing, the fabric, &c. is passed on and wound on a cylinder capable of being heated with such precision that its revolutions will cause the repeat of the pattern to fall exactly upon its corresponding part of the pattern last wound on. "Then by a " second machine or apparatus I add pressure to the said fabrics " or yarns, whilst they are in a damp state, and on the said cylinder " [by means of the weight of an iron roller which is caused to " roll and press on the wound on fabric, &c.], so as to cause the " colours to spread gradually from the centre of the pattern to the " edges or extremities thereof, and thus produce the shaded effect " already expressed." The fabric, &c. may be then dried, in preference, by passing it over pipes heated by steam.

[Printed, 1*s*. 4*d*. See Mechanics' Magazine, vol. 55, p. 415; Patent Journal, vol. 12, p. 85.]

A.D. 1851, May 14.—N° 13,633.

SMITH, Luke, SMITH, Mark, and SMITH, Mathew.—"Improvements in fabrics in weaving, and in machinery and apparatus for winding, weaving, cutting, and printing." The first nineteen claims in this specification refer to improvements in weaving, winding, and in machinery connected therewith.

"Twentieth, improvements in machinery for giving motion to "the printing blocks, and to the fabric or material under operation." The block, being suspended from the long end of a lever, is moved to and fro from the colour sieve to the printing surface by the action of a crank and rod acting on the other end of the lever. Motion is given to the fabric by an intermittent motion given to a drum at the end of the table, round which the fabric is passed by means of an intermitting wheel, and,

"Lastly, in an improved construction of printing tables." A framing supports a "table, one portion of which contains the "colour, and the other portion, over which the paper or fabric "passes, is heated with steam."

[Printed, 2*s*. 11*d*. See Mechanics' Magazine, vol. 55, p. 419; Patent Journal, vol. 12, pp. 107 and 118.]

A.D. 1851, May 29.—N° 13,650.

SIEVER, Robert William.—"Improvements in weaving and "printing textile fabrics." This invention consists, "first, in "making or producing carpets or similar fabrics, by means of the "peculiar mode of weaving (shewn in the specification and drawings), in conjunction with a process of printing and staining, "whereby the surface or surfaces thereof may be ornamented." "The machine (for printing) is circular in form, and consists "principally of two horizontal broad flat rings, mounted on wheels "or rollers secured to the stationary framing, for the purpose of "receiving rotary motion. The upper one of these rings carries "the blocks on which the several parts of the pattern or design "to be printed is cut, and the lower ring carries the colour boxes "and rollers, whereby the blocks are supplied with colour. The "outer edges or peripheries of these two rings are formed with "teeth, into which toothed wheels gear, whereby the said rings "may be carried round when required. The printing tables are "stationary, and the pressing surfaces or patterns, whereby the "impression from the block is transferred to the fabric, severally

" lay over the tables, and are connected by rods to cranks on " horizontal shafts turning in bearings fixed to the standards of " stationary framings, by which the plattens are made to ascend " and descend at proper times. The pieces of fabric to be printed " are wound on rollers placed immediately in front of the printing " tables, and after having been operated upon by the printed " blocks, they pass over triangular shaped rotary frames, the " length of the sides of which frames correspond to the length of " the pattern." By a modification of the mechanical arrangements, "the fabric or surface to be printed is carried up and " pressed against the engraved surface of the block," instead of the block being depressed for that purpose. Several sets of tables and blocks may be arranged round on the rings.

In another modification or arrangement " I employ two sets or " series of horizontal rollers, placed one above the other. The " lower series of rollers (or printing rollers) are mounted in bear- " ings immediately above the colour rollers and troughs, and the " under sides of these colour rollers dip into the colour contained " in the troughs. The upper series of rollers are the pressing " cylinders," between which and the printing rollers the fabric to be printed is caused to pass. By dividing the printing roller and colour trough into " sections," several colours may be printed by one roller at one and the same time.

[Printed, 2*s.* 11*d.* See Mechanics' Magazine, vol. 55, p. 475; Patent Journal, vol. 12, p. 105.]

A.D. 1851, June 12.—N° 13,658.

CALVERT, Frederick Crace.—"This invention consists, first, " in the application of certain volatile fluids for the manufacture " of extracts from substances containing colouring and tanning " matters or principles, which extracts are applicable in the pro- " cesses of dyeing, printing and tanning." The volatile fluids employed may be the "impure hydrate of oxide of methyle, or what " is usually called wood naptha, pyroligneous spirit, acetone, or " hydrate of oxide of mesithyle, turpentine, camphine, those vola- " tile oils which are obtained by the destructive distillation of " resins, the volatile oil obtained by the destructive distillation of " shale coal and any other bituminous shale or schist, also the " volatile carburretted hydrogens obtained by the distillation of " coal tar, which are usually known by the name of coal or mineral

" naptha; also those which may be obtained from the distillation
" of vegetable tars, and from peat or bog, or from tar and oil
" obtained from peat and bog; lastly, alcohol and ethers, such as
" the hydrate of oxide of ethile, the acetate of the oxide of ethile,
" or other ethers."

Secondly, in certain apparatus for the manufacture of extracts
" applicable to dyeing, printing, and tanning, by which apparatus
" the volatile fluids I have enumerated, or any other possessing
" the same or similar qualities, are volatilized (leaving the colour-
" ing or tanning matter or principle in the evaporating vessel),
" and then condensed and employed in the manner herein
" described." The substance from which the extract is to be made being placed in a closed vessel has the volatile fluid poured on it. After sufficient digestion the fluid is conveyed by means of a pipe into a closed boiler, where the volatile part is boiled off, and the residuum withdrawn. The volatile part is condensed, and
" run into a cistern, from which it may again be poured over the
" substance operated on.

"Thirdly, in the use of alkalies and substances having an alka-
" line reaction when mixed with substances containing colouring
" or tanning matters or principles, previous to subjecting them to
" the action of volatile fluids, as above described."

" Fourthly, the manufacturing of extracts from substances con-
" taining tanning matters or principles, by the agency of alkalies
" or substances presenting an alkaline reaction."

[Printed, 10*d*. See Mechanics' Magazine, vol. 55, p. 516.]

A.D. 1851, June 24.—N° 13,673.

BRAZIL, JOHN.—This invention consists "in the employment or
" use of soap or saponaceous compounds in water, in order to
" liberate the colouring matter of madder, garancine, or other
" 'dye stuffs' in the act or process of dyeing; also in using
" borax, either separately or in conjunction with soap or other sa-
" ponaceous compounds, in water, in order to liberate the colour-
" ing matter of madder, garacine, or other dye stuffs, in the act of
" dyeing; also in saturating the pieces of goods or fabrics to be
" dyed or printed with a soapy or saponaceous solution, which
" must be dried in the goods or pieces previous to a mordaunt
" being applied; and, lastly, in the employment or use of a solu-
" *tion of soap*, or a solution of borax, or a solution of both com-

" lay over the tables, and are connected by rods to cranks on " horizontal shafts turning in bearings fixed to the standards of " stationary framings, by which the plattens are made to ascend " and descend at proper times. The pieces of fabric to be printed " are wound on rollers placed immediately in front of the printing " tables, and after having been operated upon by the printed " blocks, they pass over triangular shaped rotary frames, the " length of the sides of which frames correspond to the length of " the pattern." By a modification of the mechanical arrangements, "the fabric or surface to be printed is carried up and " pressed against the engraved surface of the block," instead of the block being depressed for that purpose. Several sets of tables and blocks may be arranged round on the rings.

In another modification or arrangement "I employ two sets or " series of horizontal rollers, placed one above the other. The " lower series of rollers (or printing rollers) are mounted in bear- " ings immediately above the colour rollers and troughs, and the " under sides of these colour rollers dip into the colour contained " in the troughs. The upper series of rollers are the pressing " cylinders," between which and the printing rollers the fabric to be printed is caused to pass. By dividing the printing roller and colour trough into "sections," several colours may be printed by one roller at one and the same time.

[Printed, 2*s.* 11*d.* See Mechanics' Magazine, vol. 55, p. 475; Patent Journal, vol. 12, p. 105.]

A.D. 1851, June 12.—N° 13,658.

CALVERT, Frederick Crace.—"This invention consists, first, " in the application of certain volatile fluids for the manufacture " of extracts from substances containing colouring and tanning " matters or principles, which extracts are applicable in the pro- " cesses of dyeing, printing and tanning." The volatile fluids employed may be the "impure hydrate of oxide of methyle, or what " is usually called wood naptha, pyroligneous spirit, acetone, or " hydrate of oxide of mesithyle, turpentine, camphine, those vola- " tile oils which are obtained by the destructive distillation of " resins, the volatile oil obtained by the destructive distillation of " shale coal and any other bituminous shale or schist, also the " volatile carburretted hydrogens obtained by the distillation of " coal tar, which are usually known by the name of coal or mineral

This invention consists, " first, in the system of obtaining colour-
" ing matter from logwood, and other dyewoods, and also ex-
" tractive matter generally " " by the combination therein in one
" connected series of the processes of feeding, treating, lifting, and
" discharging, whereby the materials from which the extract is to
" be obtained are supplied at the bottom of the apparatus and the
" liquid solvent at the top, and the former are by successive lift-
" ings raised to the top in a more or less exhausted state, while
" the latter with the extractive matter gravitates successively to
" the bottom and is there collected in a state fit for use." The apparatus for this purpose consists of a number of pans or vessels made of glazed metal or other suitable material, suspended vertically one above the other, and enclosed in a heated case. They are filled with the substance to be operated on, which is placed on false bottoms. The liquor flows downwards from one vessel to the other. When the upper vessel is exhausted it is removed and another is introduced at the bottom filled with fresh substances to be acted upon. This apparatus may be used for making extracts of meat.

" Third, the mechanical arrangements whereby the extract or
" substance to be evaporated is supplied to, and then made to
" pass over, by its own gravity, as often as necessary, a large
" amount of heated surface in thin films, and whereby it is
" speedily reduced to the required consistency." This apparatus consists in a number of " flat hollow metallic shelves," each a little inclined, and each so placed that it overlaps the one below it and heated by steam, gas, or other suitable means. The liquor contained in a pan is drawn up by buckets attached to an endless chain, and caused to flow over the heated plates in succession and to return to the pan in a highly concentrated state.

" Fourth, the combination of a revolving cylinder or cylinders
" with scrapers, whereby the extract, by adhesion to the external
" surface of each cylinder or cylinders so heated, is brought up
" and round to the scraper for collection in a concentrated mass." Consists of a cylinder turned truly, and heated with steam, gas, &c., fitted with suitable scrapers to act on its surface, which is caused to revolve in the liquor and thereby concentrate it to the proper degree, or even till the product is of a " pilular consistency."

[Printed, 1*s*. 1*d*. See Mechanics' Magazine, vol. 56, p. 177; also vol. 57, p. 321.]

A.D. 1851, September 4.—N° 13,733.

JULIAN, Dominique.—"Improvements in extracting the "colouring properties of madder, and in rendering useful the "water employed in such processes." "I take two cwts. of madder (ground to powder); I put them in a box, in which I put "immediately afterwards the quantity of 113 to 118 gallons of "water according to the fineness of the powder." "After this "operation I allow the liquid madder to run through a woollen "cloth, placed upon a cross frame, fitting in the tun into which "the liquid is run to be filtered." The madder so washed is pressed, dried, and reduced to powder, and the product is named "flowers of madder." The liquid is placed in large tuns at a temperature of from 70° to 85° F., till the "alcoholic fermentation" is produced with or without the addition of barm. The fermented liquor "I then submit to the process of distillation, and I obtain "a spirit."

[Printed, 3*d*. See Repertory of Arts, vol. 19 (*enlarged series*), p. 241; London Journal (*Newton's*), vol. 40 (*conjoined series*), p. 291; Mechanics' Magazine, vol. 56, p. 215.]

A.D. 1851, September 11.—N° 13,745.

VARILLAT, William Jean Jules.—"Improvements in the "extraction and preparation of colouring, tanning, and saccharine "matters from various vegetable substances, and in the apparatus to be employed therein." These improvements consist, "first in the cutting machine with one or two cylinders." The cutting machine consists of two cylinders revolving towards each other, fitted with blades for cutting the wood, and supported on a strong frame. The wood being held firmly by a lever mounted frame, is lowered endways between the cylinders, and there cut by the blades, some of which are made flat and others fluted. When one cylinder is used the log is placed horizontally in a bed and screwed forward against the blades.

"Second, the apparatus for the dissolving and separation of "soluble vegetable matters from the insoluble bodies to which "they are united, by means of distilled water, at a temperature "less than one hundred degrees centigrade." The apparatus as given consists of ten receivers into which the substance to be acted on is placed on false bottoms; these are placed in a cistern of water heated to 90° R. The liquor is pumped up by suitable apparatus from one of the reservoirs, and pressed forwards through properly fitted pipes and valves to the other reservoirs. "Thus the hot water goes through a series of vessels, of which the matters contained in them become richer and richer and more dense during eighteen changes, whilst the extract is exhausted from the wood by the same proportions, a contrary effect being produced upon it."

"Third, the apparatus for evaporating in vacuum, with double and treble effect, by means of the waste steam of an engine, or by any steam expanded at less than 100°, working by the differential vacuum of one apparatus to the other (a new principle)." In a closed vessel containing the liquor to be evaporated is placed a horizontal revolving pipe divided into two by a longitudinal diaphragm; tubes or coils are attached, one end to one side of the diaphragm, and the other end to the other side, so that steam passing in on one side proceeds through the tubes where it may be condensed, or it may pass on and out by the other side of the pipe. The surface of the liquor is in communication with an air pump. The steam produced by the evaporation in the first vessel may be caused to enter the divided pipe of a second apparatus, where a second evaporation will take place.

"Fourth, the apparatus for concentrating and solidifying the products with an agitator in the vacuum with a heat less than a hundred degrees." This is a similar apparatus in principle, but differently constructed; it consists of two vessels, one placed above the other, the upper one containing the liquor to be acted on, and the lower one water heated by a pipe to the desired temperature. In the upper one, which is connected with an air pump to produce a vacuum, there is a scraper which is caused to revolve in order to keep the bottom clean.

"Lastly, the system or mode of producing extracts whereon, throughout the entire process, the heat is never raised so high as one hundred degrees, nor is the matter under treatment exposed in any way to a higher temperature."

[Printed, 2*s*. 8*d*. See Mechanics' Magazine, vol. 56, p. 257.]

A.D. 1851, November 19.—N° 13,819.

BESSEMER, Henry.—"Improvements in producing ornamented surfaces on woven fabrics and leather, and rendering the same applicable to bookbinding and other uses."

"Firstly, the various methods of ornamenting woven fabrics by "metallizing their surfaces." "For effecting this purpose I "prefer to use glazed calico, which should be stretched out on a "long table, with the glazed side upwards, and, after being damped, "so as to soften the 'dressing' used in its original manufacture, "the metallic powder is to be applied with a soft brush or piece of "cotton wool. It is then passed through a 'calender,' the bright "roll being well heated, and in contact with the metallized surface "of the fabric." The material may afterwards be embossed or printed upon. The material to be metallized may be previously dyed of a suitable bright colour. The adhesive properties of the dressing may be supplemented by "starch, paste, &c." "Japanners' "gold size," "copal varnish," diluted with spirits of turpentine, or other suitable resinous compounds, in lieu of paste or starch, or a third coating of "gutta percha," may be used, which will produce a waterproof material. A coating of lacker may be given to the metallized surface, "to preserve the metal from oxidation, "and in some cases to give it a factitious color."

"Secondly, the printing or otherwise producing on woven fabrics "a series of coloured lines, and afterwards, by pressure or embossing, producing such ribs or patterns thereon as will break up "the coloured lines, in the manner and for the purpose herein "described."

"Thirdly, the ornamenting the surface of woven fabrics with "leather." The leather, reduced to powder, is applied to the fabric, the surface of which has been covered with "gutta percha "or othĕr pliable and adhesive matter." The fabric so coated is then passed through heated embossing rollers, by which any grain, design, or pattern may be given; or very thin shavings of leather may be glued to a fabric and embossed as above.

"Fourthly, the formation of a partial vacuum beneath textile "fabrics, to facilitate their absorption of the colouring matter "used in printing or stencelling patterns thereon." The under part of the table on which the fabric to be printed is laid is in communication with an exhausting air-pump, and the table itself is perforated with numerous holes, to allow of the action of the partial vacuum in drawing the colour into the fabric.

"Fifthly, the peculiar arrangement of apparatus herein described "for producing impressions, sunk or in relief, on the backs or

" edges of books, and for giving them any desired amount of " curvation."

[Printed, 7*d*. See Repertory of Arts, vol. 19 (*enlarged series*), p. 356; Mechanics' Magazine, vol. 56, p. 436.]

A.D. 1851, November 27.—N° 13,834.

WHYTOCK, RICHARD.—" Improvements in applying colours to " yarns or threads, and in weaving or producing fabrics, when " colored or party colored yarns or threads are employed." The colour pulley or roller, which imparts the colour to the yarns wound on the usual large cylinder, is caused to traverse by means of two endless chains or belts, and is held up against the yarns by means of two rods. It passes over a pair of wheels, and as it returns underneath is supplied with colour by means of a roller working in colour; it rises round another pair of wheels, and thence proceeds to print another stripe, the cylinder in the meantime having been moved round the requisite distance in the usual manner.

The second part of this specification describes improvements in weaving, wherein a shuttle is employed, the movements of which are actuated by magnetic power.

[Printed, 9*d*. See Repertory of Arts, vol. 20 (*enlarged series*), p. 34; Mechanics' Magazine, vol. 56, p. 458.]

A.D. 1851, December 4.—N° 13,841.

WOOD, WILLIAM.—" Improvements in the manufacture of, " and ornamenting of, carpets, rugs, and other fabrics." The specification describes improvements "in the use of silk waste in " the manufacture of terry-looped carpets, &c." "Also, in rela- " tion to the securing a more correct outline or pattern in warp " printed goods during weaving." "Also, for producing an im- " proved figured or ornamented fabric, by combining the use of " the jacquard machine with printed warp threads." "Also, in a " mode of giving additional substance to Brussels or pile carpets " or rugs." "Also, in a modification of the ordinary 'trevat' or " pile cutting knife."

"Also, second, the printing or dyeing patterns on or into warps " or warp materials, by forming cells for colouring matter, of the " shape of the pattern required, and pressing the warp into or in " contact with them." This is the application to the printing of warps of the cellular apparatus previously described by the Patentee " where the object was to print or dye woven fabrics."

"Fifth, the freeing printed goods or materials from the thickening used with the colors, by beating or brushing it out when dry, " or by other mechanical means, in lieu of, or in addition to, " washing it out."

[Printed, 4*d*. See Repertory of Arts, vol. 20 (*enlarged series*), p. 116; Mechanics' Magazine, vol. 56, p. 477.]

A.D. 1851, December 19.—N° 13,866.

BURCH, Joseph.—"Improvements in printing and ornamenting " cut pile and other fabrics and yarns." These improvements consist, "first, in the mode of combining and using the processes " of embossing and printing, or printing and embossing." The printing, which is performed in the usual way, may be upon that part of the fabric which is embossed, or the printing may be done first, and the portion so printed afterwards embossed. The conjoined result of printing and embossing being new and elegant effects.

"Secondly, the passing woven fabrics through a steam chamber " before the process of embossing."

"The third part of this invention consists in the adaptation of " the principle of my patent block printing machine to a mode or " apparatus for hand block printing, and by this means I ensure " the perfect registering of the different colours of the design without depending upon the skill of the workman. It also consists " in a mode of fixing the fabric on an endless cloth, by means of " pin points and clasps, and moving it from block to block, or " from workman to workman; and in order to ensure its passing " under each block in a direct line, the attaching to each side of " the endless cloth a non-elastic band having guide rollers at " suitable distances through its whole length, and by means of " holes in the bands, and corresponding studs on the entering " drum, move it forward by such stages that the head joinings of " each impression are not made in a line across the piece, but full " half the length of the teeth. It also consists in the mode of " adapting sliding frames for carrying the printed blocks, and " which, being actuated by hand labour, are passed over furnishing " rollers, instead of, as heretofore, the block being carried by the " workman and furnished with colour by being dipped upon the " color sieve."

[Printed, 1*s*. 10*d*. See Mechanics' Magazine, vol. 56, p. 515.]

A.D. 1852, January 12.—N° 13,894.

DUTHOIT, Alcide Marcellin.—"An improved chemical "combination of certain agents for obtaining a new plastic product. This invention relates chiefly to combinations of gutta percha with other substances, coloured or otherwise, whereby plastic products will be obtained; also to the dissolving, purifying and bleaching of gutta percha by means of rectified sulphuret of carbon (see Abridgments on Gutta Percha and India-rubber). The Patentee proposes to apply by means "of cylinders "prepared by the galvano-plastic system" the following solution "for imitations of stuffs for furniture, damask, wool, silk, &c.;" also for "every kind of hangings for apartments," and for "imitating nature by stamping or painting the colour on artificial "flowers." The solution used is made by mixing a strong decoction of "amianthus," (mountain flax) in "pure naptha or "benzole," with gutta percha. A small quantity of caoutchouc may be added to give elasticity.

[Printed, 4*d.* See Mechanics' Magazine, vol. 57, p. 59.]

A.D. 1852, January 20.—N° 13,898.

MACNEE, James.—"Improvements in the manufacture or "production of ornamental fabrics." These improvements are first, in weaving, whereby by the arrangement of the "heddles or "the warp, or weft threads," "the flushed surface of the fabric "(of the zebra class) is of the natural colour of the yarn in its "plain, undyed, or unprinted state, except where the printing "colours pass through from the pattern side," by which means "the flushing is not necessarily irregular, as it must be when it is "the result of the pattern action in the common zebra loom." "I afterwards complete the manufacturing process by printing "the required ornamental pattern on the plain or twilled side of "the fabric by any of the ordinary well-known modes of printing." The colours being so laid on in a solid mass are full and bright.

[Printed, 3*d.*]

A.D. 1852, February 9.—N° 13,898.*

MACNEE, James.—Disclaimer to the Specification of Letters Patent, N° 13,898, dated July 17, 1852. In this Disclaimer, the

Patentee limits his invention as follows:—"1st. The manufacture "of a new fabric of the zebra class, or nearly resembling zebras, "herein-before described. 2nd. The manufacture or production "of a plain or unfigured fabric with a flushed reverse side, for the "purpose herein-before described."

[Printed, 4*d*. See London Journal (*Newton's*), vol. 41 (*conjoined series*), p. 197; Mechanics' Magazine, vol. 57, p. 78; Practical Mechanics' Journal, vol. 5, p. 108.]

A.D. 1852, January 20.—Nº 13,903.

WHITEHEAD, John, and DIGGLE, Robert.—"Improved "ments in bleaching and dyeing, and in washing, scouring, and "other processes connected therewith." These improvements consist "in combining or connecting together two or more appa"ratus for the purpose of operating upon cotton and linen piece "goods, so as to effect by a continuous action various processes "connected with bleaching and dyeing, in contradistinction to "the plan now adopted of performing the same operations, "through the medium of independent apparatus, by which "method we are enabled to effect a considerable saving in the "amount of labour and material." By this invention the fabric to be operated on is caused "to pass continuously from one vessel "to another until the required effect has been performed; and in "like manner the various operations of dyeing, washing, &c., are "effected." The Patentees remark "that we do not confine "ourselves to the precise arrangement and construction of parts "shewn in the drawings, nor to the particular combinations of "processes described, such having been mentioned by us as "examples only by which the system which constitutes the "essence of our invention may be carried out."

This specification is accompanied by several drawings showing various modes of arranging, and shapes of cisterns, with rollers, squeezers, &c., which may be adopted in carrying out the principle of this invention. The fabric in all cases is caused to pass continuously from one to the other, and through the requisite liquors to produce the desired result, whether bleaching, dyeing, washing, scouring, at one operation.

[Printed, 2*s*. 9*d*. See Mechanics' Magazine, vol. 57, p. 97.]

A.D. 1852, March 11.—Nº 14,022.

MATHER, Colin, and ROLFFS, Ernest.—"Improvements in "printing, damping, stiffening, opening, and spreading woven

" fabrics." This invention consists, "Firstly, in the employ-
" ment of a roller or rollers which convey color to the printing
" cylinder or cylinders direct, that is to say, without the use of
" intermediate furnishing rollers or blankets, as applied to surface
" printing machines."

"Secondly, the employment of a stationary table or tables
" against which the printing surfaces are caused to act." Instead of employing the usual bowl narrow faces or tables are introduced against which the printing rollers act.

"Thirdly, constructing cylinders for receiving devices for sur-
" face printing by placing washers of paper or other suitable
" material upon a shaft or mandril."

"Fourthly, the use of a cylinder in combination with a doctor,
" or equivalent thereto, for conveying moisture or stiffening
" matter to woven fabrics by contact." The surface of the cylinder may be smooth or indented.

"Fifthly, the use of revolving discs for opening or spreading
" woven fabrics." The fabric in the "rope" is caused to pass between the revolving disks, and according as it is made to touch one disk or the other it is turned in the desired direction, and has the "twist" thereby removed.

[Printed, 1*s.* 6*d.* See London Journal (*Newton's*), vol. 42 (*conjoined series*), p. 201; Mechanics' Magazine, vol. 57, p. 257.]

A.D. 1852, March 15.—N° 14,024.

MERCER, John, and GREENWOOD, John.—"Improvements
" in preparing cotton and other fabrics for dyeing and printing."
" This invention relates to improvements in preparing cotton and
" other fabrics with oil, called in the art of dyeing Turkey red, the
" oiling process, and consists in having the cloth or fabric wet
" with water or watery solutions when passed through or im-
" pregnated with oil." The fabric may be wetted by a padding
" machine, and the oil through which it is passed may be heated
" to from 140° F. to 300° F., in which "we prefer to dissolve
" about 8 oz. of carbonate of potash or soda to the gallon;" it is then treated in the usual well-known manner for Turkey reds.

[Printed, 3*d.* See London Journal (*Newton's*), vol. 41 (*conjoined series*), p. 348; Mechanics' Magazine, vol. 57, p. 276.]

A.D. 1852, March 24.—N° 14,035.

HULSEBERG, William Henry.—"Improvements in the
" treatment of wool, hair, feathers, fur, and other fibrous sub-

" stances, and in machinery or apparatus for the same." These improvements consist, " Firstly, in the purifying of new horsehair, " cattle tail hair, hogs' hair, feathers, wool, or other fibrous sub- " stances, by the employment of a lime bath and the application " of chlorine gas," " by which all impurities and infectious matters " contained in the said substances are removed." The hair, &c. should be washed in warm soap and water with some potash added, then rinsed, and steeped in lime water for two hours, and finally squeezed out of the lime and placed on trays in a suitable closed chamber where it is submitted to the action of chlorine gas; at the expiration of two hours a pound of the solution of ammonia is passed into the chamber which extracts the excess of chlorine gas from the air. " In purifying feathers, old hair, or furs, the " lime bath must be omitted, and the goods slightly sprinkled " with a little powdered lime."

The Patentee also claims " the adaptation of moveable teeth to " the revolving cylinders of machinery for carding curled hair, or " cocoa-nut fibre, or other material;" also the " setting of the " said teeth in a bed of elastic material;" also " the regulating of " the upper lags with springs, so as to give them a suitable " adjusting laternal play;" and, finally, " the application of pres- " sure spring bearings to the feed rollers."

[Printed, 1*s*. 3*d*. See Mechanics' Magazine, vol. 57, p. 298.]

A.D. 1852, March 29.—N° 14,047.

MELVILLE, James.—" Improvements in weaving and printing " shawls and other fabrics." The first four claims in this specification are for improvements in weaving. The fifth, " for the " system or mode of printing, colouring, or ornamenting shawls " and other fabrics, by stretching such fabrics on impression drums " or cylinders." The fabric is stretched round the circumference of a large drum, and the printing is performed so that " the repeats on " the printing roller shall coincide exactly with the cylinder surface " during printing."

Sixth, for " the application and use of the color supplying apparatus, adjusted on a portable carriage in connection with the " large impression drum."

" Seventh, the systems or modes of adjusting and guiding the " color apparatus and printing roller."

Eighth, "the application and use of segmental printing surfaces
" for giving a differential series of impressions." "The segmental
" printing surface is screwed on to a segmental iron plate, with
" an internal feather fitting to the groove in the shaft."

Ninth, "the system or mode of printing shawls and other fabrics
" by means of an impression drum or cylinder and a printing roller
" differentially geared together, so as to change the relative posi-
" tions of the drum and roller surfaces at each revolution."

"Tenth, the system or mode of printing in two or more colors,
" by means of a traversing apparatus, supplied with such colours
" and actuated as described."

" Eleventh, the system or mode of printing handkerchiefs and
" other fabrics, by stretching the pieces over impression drums, to
" cause the length of the piece to correspond with the intended
" number of repeats of the pattern."

"Twelfth, the system or mode of printing piece goods of exces-
" sive length, as compared with the circumference of the impres-
" sion drum, by causing the ends of the pieces to be received into
" the interior of the drum."

" Thirteenth, the application and use of a roughened or frictional
" surface coating to the impression drum or table, for holding the
" fabric with a uniform tension."

" Fourteenth, the system or mode of printing fabrics by stretch-
" ing the same on a flat vertical table or a stretching frame, either
" fixed or moveable, the colours being laid on by a roller, either
" fixed or moveable, the moving portion in either case being
" traversed."

" Fifteenth, the application and use of conical printing rollers for
" the purposes described."

" Sixteenth, the system or mode of printing fabrics by means of
" a conical roller rolling round a table or flat impression surface."

" Seventeenth, the system or mode of printing square or rectan-
" gular fabrics, by stretching the same (while wet) upon circular
" tables, for the production of distorted or differential impres-
" sions."

[Printed, 2*s*. See Practical Mechanics' Journal, vol. 5, p. 158.]

A.D. 1852, April 17.—N° 14,072.

KURTZ, Clemence Augustus.—"An improvement in all pre-
" parations of every description of madder roots and ground

" madder, in or from whatever country the same are produced; " also, of munjeet, in the root and stem, from whatever country." " My invention consists of preparing madders and munjeet, by " combining therewith preparations of liquor which will tend to " produce fermentation. I take at the rate of twenty pounds of " crushed malt to one hundred gallons of water, and boil it for 20 " or 30 minutes, to which liquor I add, on stopping the boiling, " about forty-five pounds weight of bran, which is well stirred in. " The liquor is then allowed to stand till the malt and bran fall to " the bottom. The clear liquor is to be run off, and the remainder " filtered." This liquor, diluted with water, so that the temperature will be about 112° F., is added to the madder or munjeet and stirred well. "The mass is left to rest till symptoms of fermentation present themselves, which are to be immediately checked " by repeated stirrings, during a period of 16 or 18 hours. It is " then to be filtered, pressed, dried, ground, and packed in the " usual manner." Malt and bran are preferred to other similar substances.

[Printed, 3*d*. See London Journal (*Newton's*), vol. 41 (*conjoined series*) p. 345; Mechanics' Magazine, vol. 57, p. 337.]

A.D. 1852, April 20.—N° 14,078.

REYBURN, ROBERT.—"Improvements in printing on silk and " other fabrics and yarns." These improvements consist "in the " making of printing blocks from colour thickened with gum or " other suitable substance, and printing on silk and other fabrics " and yarns from the said blocks."

Ordinary colours used in printing silk, &c., thickened with gum, are spread with a soft brush uniformly over a surface of paper, and dried. Additional coatings are given till the sheet of dried colour is of the requisite thickness. The paper being then peeled off, the sheets of various colours are cut as it is shown in the design, and of these the pattern block is composed; or the sheets may be cut into squares and the pattern set up after the manner of printing types. The fitted up block may be flat or cylindrical. "In order " to print from these blocks or cylinders it is necessary to moisten " the surface of them with water, or by blowing steam, which " becomes condensed thereon, and softens so much of the block " or cylinder as serves for an impression. The impression is taken

" by means of pressure, in any way similar to those in use for " printing by ordinary blocks or cylinders."

[Printed, 3*d*. See Repertory of Arts, vol. 20 (*enlarged series*), p. 313; Mechanics' Magazine, vol. 57, p. 354.]

A.D. 1852, April 28.—N° 14,092.

NEWTON, William.—(A communication.)—" Improvements in " machinery for weaving, coloring, and marking fabrics." The first part of these improvements relate to "the employment of " several shuttles, arranged in the loom in such a manner that " when a weft thread breaks, or a shuttle misses, a second shuttle " will take its place." Also, to " a novel arrangement of parts, " whereby the batten of carpet, velvet, or other looms, may be " driven at varying speeds." Also, to the means " to facilitate the " introduction into the shed of the warp of a wire or any other " rigid or flexible material, for the purpose of producing a terry " or other pattern on the cloth." Also, to " the means of pro- " ducing a selvage by a self-acting temple."

Secondly, to " the use and application to a self-acting printing " machine, for printing various fabrics, of a curved or plain surface, " in which the the pattern, figure, or design to be printed is cut " out after the manner of a stencil plate. Also, in the employ- " ment of an elastic roller for applying the color to such perforated " surfaces, for the purpose of performing the office of the ordinary " brush by mechanical means." The pattern to be printed is cut out in a sheet of thin copper or other suitable material, which is formed into a roller or left in the state of a plate. In either case the colour is applied and pressed through on to the fabric by means of an elastic roller, which is supplied with colour by furnishing and intermediate rollers.

[Printed, 2*s*. 8*d*. See Mechanics' Magazine, vol. 57, p. 393.]

A.D. 1852, April 29.—N° 14,094.

FISHER, Charles.—"Transferring ornamental designs, in " metal, on to woven or textile fabrics." "The ornamental " designs in metal are attached on to woven or textile fabrics by " the use of certain amalgams or adhesive powders or substances," such as gum arabic or gamboge. The metal leaf is laid on the fabric, so prepared that it will adhere to it, and passed through between two rollers, one of which may be plain and the other have the pattern upon it, or both may be cut as for embossing. One of the rollers is heated by gas, or by other suitable means. The surplus gold is then removed by wiping the fabric, laid on a table, with flannel, or it may be caused to pass through a box or receiver, and there brushed by a revolving brush placed at "an angle of "about 35 degrees."

[Printed, 10*d*. See Mechanics' Magazine, vol. 57, p. 393.]

A.D. 1852, May 1.—N° 14,113.

NEWTON, Alfred Vincent.—(A communication)—"Improvements in the manufacture of printing surfaces." "I claim the "making from flat moulds of plates (from which to take impressions by a cylinder press) of a substance which, when heated, will "be sufficiently plastic to receive the required impression, by "moulding in a mould of the required form in reverse, and when "cooled will be sufficiently hard to give the required impressions "in a cylinder press, and admit of being bent around and fitted "to a cylinder; also, the application of such plates or printing "surfaces to the cylinders of cylinder printing machines; also "the making, by casting in moulds or by pressure, plates with "raised characters or figures, the entire substance of such plates "being sufficiently elastic to adapt it to printing on hard or "irregular surfaces." The mould for this purpose may be composed of "two or three parts of gutta percha, or of two or three "parts of india-rubber, and from one to three parts of finely "pulverized graphite or soapstone, or plaister of Paris, or peroxide "of manganese," heated and well ground and mixed together, or it may be made of other suitable material. The "highly elastic "printing surface" is obtained by taking a cast from the above in a composition which may be composed of "the best kind of "coopers' glue and molasses," or of other "highly elastic substances."

[Printed, 4*d*. See London Journal (*Newton's*), vol. 42 (*conjoined series*), p. 280.]

A.D. 1852, May 29.—N° 14,145.

LEESE, Joseph, the younger.—"An improved system of preparing, cutting, and engraving rollers to be used for printing "woven and other fabrics, and improved machinery for printing

" and washing the same fabrics." This invention consists, "first " in the construction and application of metal rollers for surface " printing." The copper of the roller may be cut out, or removed by acid, leaving the parts for printing in relief, and those parts are hollowed out to admit of the introduction of "felt or other " suitable porous matter," which is caused to adhere by means of " gutta percha.

" Secondly, the construction and application of rings or parts of " rollers for printing." "The several rings or cylinders are " placed on to a spindle or mandril running through them, and " are fixed thereon by keys or screws, or otherwise;" "or pieces " of copper, cast in such parts of a circle as will include so much " of the pattern as may be required, can be used."

"Thirdly, in improvements in printing machinery," consisting in giving by means of a rod and excentric, or by other means, "a " rapid tremulous motion to the roller itself, or to the apparatus " which furnishes it with colour, or to the bed against which the " roller presses when printing;" also, " in the application of small " rollers or pullies to guide the blanket straight over the cylinders " and of other rollers or pullies to guide the colour sieve over " the rollers."

" Fourthly, in the means of obtaining patterns on metal rollers " used for printing by transferring." The pattern may be painted or printed on paper or other suitable surface (which may be prepared with a fine coating of soap or gum), with a varnish capable of resisting the action of nitric acid, and thence transferred to the surface of the heated roller; or the paper may be first covered with a thin film of varnish, and the pattern then printed or painted on it, which will act as a cover to such parts of the varnish as it falls on, " a mixture of ground chalk and gum senegal" being preferred for this purpose; or the pattern may be painted or printed on the paper with the chalk and gum composition, transferred to the copper, and then the roller immersed in the " var- " nish, which is commonly used by engravers to resist the action " of nitric acid; then run over the composition which had been " transferred to the roller." The roller in all cases being submitted lastly to the action of nitric acid to be engraved. The Patentee also claims the taking impressions from " lithographic " stones or zinc," with a view to their transferance to rollers, for the purposes of engraving.

"Fifthly, in the application of the means of fixing printing " rollers on to their axes or mandrils when used in printing machines." This is effected by "rings and screws," or by "wedges " being part of a cone," "as have heretofore been used by engra" vers of rollers."

"Sixthly, in the combination of parts in constructing a machine " for washing." A long cistern for holding the water is divided into several separate compartments, and fitted up with rollers and pressing rollers. The water is supplied to each compartment separately, and is caused to spirt against the surface of the cloth as it moves over the rollers through the machine in the direction from the dirty water to the clean supply. Pumps are connected with the separate compartments, by which means the water from each may be raised and again caused to spirt on the cloth.

[Printed, 7*d*. See Repertory of Arts, vol. 21 (*enlarged series*), p. 88; Mechanics' Magazine, vol. 57, p. 477.]

A.D. 1852, June 8.—N° 14159.

GRATRIX, WILLIAM.—"Improvements in the production of " designs upon cotton and other fabrics." These improvements consist "in printing and partially diffusing upon the fabric one or " more portions of the dyeing matter, suitable for producing the " desired color, and subsequently applying the other portion or " portions to complete the process of dyeing;" also, "in applying " one portion of the dyeing matter intended to be used for the " design by means of a soft substance suitable for causing it to be " diffused with a diminishing shade, and completing the design " by applying dyes or colours upon the fabrics to be so treated." For effecting the first object the fabric may be printed with acetate of iron, and then passed through heated water alone, or water mixed with dyeing matter. On afterwards dyeing the fabric so treated two shades will be produced, the darker on the places printed. To effect the second object two modes are given for applying colouring liquors to the fabric, by means of a "bunch of " worsted, or other substance suitable for drawing fluids by cap" pillary attraction," "and covered with a piece of porous sub" stance, as cloth." The soft pad, being supplied by suitable means with colouring liquor, is caused to press on the fabric, and thereby stain it with "radiating patches;" and any required device may thereafter be applied by printing.

[Printed, 10*d*. See Mechanics' Magazine, vol. 57, p. 515.]

A.D. 1852, June 24.—Nº 14,179.

HIGGIN, JAMES.—" Improvements in bleaching and scouring " woven and textile fabrics and yarns." These improvements consist, firstly, " in combining together, in a mixture, soda ash, or " caustic soda, resin or resins, and lime, for the purpose of boiling " cloth or yarns, to be bleached and scoured ; " " or any mixture " of resin or resins with soda or alkali and lime, to be used in " boiling cloth or yarns." The Patentee's process for bleaching may consist in adding to the usual lime boil a suitable quantity of a solution of chloride of lime; and for the first ash boil he uses a mixture of "thirty gallons of water, one hundred and twenty " pounds of soda ash, and eighty pounds of American resin, or " gum, thus :"—This compound should be boiled for eight hours and then have put into it "twenty-five pounds of lime previously " slacked to a paste with water." This mixture should be boiled for six hours and then transferred to the keir into which is put the cloth or yarn, and a sufficient quantity of water, and the liquor boiled by steam for about fourteen hours. These quantities will be sufficient for " three thousand five hundred pounds weight of " cloth or yarn."

[Printed, 2½d. See Repertory of Arts, vol. 23 (*enlarged series*), p. 55; Mechanics' Magazine, vol. 58, p. 17.]

A.D. 1852, June 24.—Nº 14,180.

SWAN, JOSEPH.—" Improvements in the production of figured " surfaces, and in printing, and in the machinery or apparatus " used therein." This invention " relates, first, to a mode of engraving metal plates, or of producing figured surfaces on various " substances by the use of a species of pentagraphic apparatus, " worked in connection with guide figures or surfaces, so as to " enable an unskilled operator to produce an engraving or figured " surface of great accuracy, and in a much shorter time than has " hitherto been required for the execution of similar work by the " hand of a skilled engraver. Second, to a mode of increasing " the efficiency of the ordinary lithographic press or modification " thereof, by actuating it from some continual mover, as the shaft " of a steam-engine or water wheel, instead of working it by hand " as at present; such connection being effected by suitable engaging and disengaging apparatus actuated by simple self-acting " mechanism."

The Patentee claims "the general arrangements of machinery, "apparatus, or means for engraving and printing;" "the application and use of the pentagraph or modifications thereof for "the copying on any required scale of original letters, figures, or "devices;" the system or mode "of constructing pentagraphic "apparatus for copying purposes;" "the application and use of "pentagraphic apparatus suspended on a ball or universal joint;" "the system or mode of engraving letters, words, or figures from "detached original guides or matrices;" "the application and "use of separate or detached guide figures or matrices, combined "at pleasure to form words, sentences, or devices, by the agency "of the pentagraph;" "the systems or modes of ruling or drawing parallel lines by the aid of the pentagraph;" the application and use of ruled or lined glass surfaces or the edges of "glass sheets for producing engraved lines;" "the system or "mode of working or actuating lithographic printing presses by "engagement or disengagement of the driving pressure roller "with a continual mover; the application and use of an engaging "and disengaging clutch to the pressing rollers of lithographic "presses;" "the system or mode of working lithographic presses "wherein the engaging movement of the pressing roller with the "stone table also simultaneously engages such roller with the "continual moving shaft;" "the system or mode of releasing "the stone from the printing pressure by means of a bevil or "reduction of the stone's thickness at the end of the stone;" "and, lastly, the application and use of a duplex ball and socket "joint, and parallel motion to act as a universal joint, as described "in reference to my pentagraphic apparatus."

[Printed, 1*s*. 3*d*. See Mechanics' Magazine, vol. 58, p. 37.]

A.D. 1852, July 20.—N° 14,235.

BEALEY, Richard.—"Improvements in apparatus used in "bleaching." "These improvements consist in a novel arrangement of apparatus constituting a steam keir, to be used for "bleaching textile fabrics, &c. According to the usual method by "which the process is conducted, the bleaching liquor is heated by "steam which is introduced direct into the keir, and it is caused to "rise so as to affect a circulation by means of a central pipe which "is open at bottom to the general body of the liquor, whereas,

" according to my improvement, it is heated within a chamber or " pipe situate on the outside, by which arrangement of apparatus " I effect a less obstructed circulation of the liquor, so as to eco" nomize fuel and avoid that tremulous motion in the keir which, " when operating with some descriptions of goods, is productive " of great loss."

[Printed, 6*d*. See Mechanics' Magazine, vol. 58, p. 117.]

A.D. 1852, August 26.—N° 14,275.

BELLFORD, Auguste Edouard Loradoux.—(A communication.)—" Improvements in the machinery and apparatus for " printing fabrics and other surfaces." The Patentee claims " the mode of distributing colors, mordants, and rongeants on " cloths, paper, stuffs, leather and all textile fabrics, and in " general on all substances that are susceptible of being dyed or " printed by means of sieves or cylinders." The "colors," " mordants," or "rongeants," (the latter is a term by which the inventor calls the various acids, spirits, or alkalies, or other matters or liquids which are used by dyers to eat away colors or to substitute one color for another,) are placed in a perforated cylinder so arranged as to have a regular to-and-fro motion over the top of the sieves, and drop through on the sieves in spots or specks. According as the substance used be a dye, a mordant, or a rongeant, the suitable effect will be produced on the fabric when it is transferred thereto.

[Printed, 3*d*. See Mechanics' Magazine, vol. 58, p. 216.]

A.D. 1852, September 10.—N° 14,290.

STEWART, Alexander.—" Improvements in the manufacture " or production of ornamental fabrics." These improvements consist " in producing ornamental fabrics " by the " production or " manufacture of a composite fabric, as a mousseline delaine, with " the warp and weft dyed or coloured, either in one or more tints " or colours, and printing or impressing thereon any suitable dis" charge or color negativeing medium;" or, by " the application " of a resist or reserve pattern; " or, by " the production of " fabrics, composite or not, with an uncoloured weft or warp, and " printing thereon a resist or reserve, with a final covering of the " *ground, by* padding, printing, or blotching;" or, by " the system

" or mode of ornamenting fabrics, whether composite or not, by " printing thereon with a resist or reserve medium combined with " any suitable color, which color will thus be given to the piece, " whilst, at the same time, the former resists the application of " any other colour." The " discharges or colour negativeing " mediums " employed may be " alkali," " chloride of lime," or " acidulous solutions," or otherwise, and the printing is effected with " blocks or rollers in any convenient manner." The chemical action of such discharges differing when applied to cotton, or woollen, or mixtures thereof, new effects are thereby produced on such composite fabrics.

[Printed, 3*d*. See Mechanics' Magazine, vol. 58, p. 255.]

A.D. 1852, October 7.—N° 14,314.

FONTAINEMOREAU, PETER ARMAND LE COMTE DE.—(A communication.)—" Improvements in washing, bleaching, and " dyeing flax and hemp, and in mixing them with other textile sub- " stances." " The first part of the invention consists in washing, " bleaching, or dyeing flax or hemp, when those substances have " been previously submitted to all the preliminary and necessary " operations for spinning, and the passing through the bobbins " and fly frames. In that state I wind up the bobbins in skeins, " and I wash, bleach, or dye them by the usual process ; and when " these skeins are bleached or dyed, and either dry or not, they " are put on bobbins to continue the spinning upon the mule by " the usual process. I could also bleach or dye the flax or hemp " on the bobbins when they come out from the bobbin and fly " frames."

" The second part of the invention relates to jasping or " marbling, by means of several colours, the same thread, by the " union of several tufts of flax or hemp, bleached and dyed, and " joined to the said thread between the operations of the bobbin " and fly frames and the mules." " When I prepare threads " composed of several tufts of flax or hemp it will be advantageous " to arrange the part of the mule on which are placed the bobbins " in such a manner as to set a number of them proportionate to " that of the spindles to be put in operation."

" The third part of the invention relates to the process for " mixing flax or hemp with cotton, silk, wool or any other fibrous " substance."

[Printed, 3*d*.]

A.D. 1853, February 5.—N° 14,356.

DAVID, Pierre Isidor.—"Improvements in the method of "bleaching, and in the apparatus connected therewith." These improvements consist in bleaching "cotton, either in the raw state " or more particularly when manufactured into yarn or thread, " and either in the cop or the hank," " by means of chlorine gas, " and whilst the cotton is in a dry state or nearly so." The Patentee's mode of applying his invention may be as follows. The cotton, &c. is first steamed in a close vessel with "dry steam," and afterwards submitted to ammoniacal gas. "Chlorine gas is " then admitted to the lower part of the receiver [into which the " cotton is put], the air being allowed to escape through a stopcock. As soon as the cotton is sufficiently bleached, which will " be when the gas has penetrated to the top of the chamber, the " gas and escape pipes are closed, and the chlorine gas is then " exhausted from the cotton by means of an air pump." "Exhaustion and readmission of air may be repeated as often as " thought necessary," and ammonia may be injected to assist in the removal of the chlorine. The cotton may then be withdrawn from the receiver and again submitted to the action of dry steam and ammoniacal gas. The Patentee recommends that the chlorine should be purified by passing it first through "water and subsequently through sulphuric acid."

[Printed, 6*d*.]

PATENT LAW AMENDMENT ACT, 1852.

1852.

A.D. 1852, October 1.—N° 39.

ABATE, Felix, and De CLERVILLE, John Julius Clero.—" Improvements in preparing, ornamenting, and printing on " surfaces of metal and other substances." " This invention con- " sists in dyeing and printing on surfaces of metal, wood, glass, " and other substances, by the processes employed in dyeing and " printing on woven fabrics, also in marbling such surfaces by the " processes employed in marbling on paper, through the medium " of a previous coating of such surfaces, with a preparation com- " posed of glue and sugar or plaster of Paris, or other adhesive " and absorbent substance or composition. We also ornament " metal and other surfaces, after having applied a resinous resist " (by means of a flexible mould filled with the resinous substance) " by means of any of the bronzing, oxidizing, parcels gilding, or " electro-plating processes."

" Our invention also consists of drawing plates of metal between " parallel bars with projections or teeth, which produces indents " or planishing in lines."

" Also we scour the metallic surfaces by coating them with a so- " lution of glue and hydro-chloride of tin (muriate of tin); when " dry, we take off the coating, and burnish the surface."

[Printed, 3½*d*.]

A.D. 1852, October 1.—N° 96.

BRIDSON, Henry.—" Improvements in machinery to facili- " tate the rinsing, washing, and cleansing of fabrics, which " machinery is also applicable to certain operations in bleaching " and dyeing." These improvements in rinsing, washing, &c., consist "in substituting flat winces or revolving frames," similar to those described, "for round or angular rollers, around

" which the fabric is passed, and thereby caused to progress and " to flap together and against the fluid in the cistern, so, and in " such manner, that the same shall strike in flat parallel blows " on the surface of the fluid.

" Secondly. The combinations of machinery shown for pro- " ducing either wholly or in part the same effect as the flat winces " or revolving frames.

" And lastly. The compensation roller, when used for the pur- " pose" described. Through this machine, the fabrics operated upon, are caused to pass continuously, distended to their full width or otherwise.

The "flat winces or revolving frames," of which there may be one, two, or four, consist of "centre shafts and discs," into which " rails are secured," and are caused to revolve rapidly in a cistern of water or other fluid, and to beat the fabric as it passes round them. The fabric may be caused to pass several times round these winces before it leaves the cistern. The winces may be modified by substituting "rollers" for the rails; and other mechanical means may be adopted to bring the fabric in contact with the surface.

The "compensating roller" is placed to guide the fabric at its exit from the machine, and which, by means of "springs" or otherwise, is caused to yield in order "to compensate for the varia- " tions in the delivery of the fabric from the point where it leaves " the wince to the nip of the squeezer rollers."

[Printed, 6½*d.*]

A.D. 1852, October 1.—N° 113.

HARCZYK, Bernhard.—"An improved preparation or com- " position of coloring matter to be used in washing or bleaching " linen and other washable fabrics, and in the manufacture of " paper and other substances."

The object of this invention is to supersede the use of the "blue " balls or stones," usually employed by laundresses in washing linen, by substituting a soluble preparation of indigo, when previously coated "on sheets of paper, linen rags, or other substances " capable of receiving the preparation." In practise, a piece of the blued paper or rag is put into the water employed. The preparation of indigo is prepared by dissolving it in strong sulphuric acid, which is afterwards neutralized by an alkali, and the deposit washed and filtered. The Patentee states, that colouring matter so prepared may be used by "sugar refiners to whiten their " sugars," or by "paper manufacturers, when a fine blue tinge is " required."

[Printed, 3½*d.*]

A.D. 1852, October 1.—Nº 118.

STEWART, Alexander.—(Provisional Protection only.)— " Improvements in the manufacture or production of ornamental " fabrics." "This invention relates to a novel and improved " mode of figuring or ornamenting woven fabrics of various " classes (particularly non composite fabrics), by a peculiar adaptation of what is technically known as the 'discharge' process, " or the discharging or negativing of color by printing or applying a suitable discharging medium, such as alkali, chloride " of lime, or acidulous solutions, to a coloured fabric," of which the warp and weft may be coloured differently, whereby "one color " only is removed by such medium from the piece." Elegant effects are produced thereby.

[Printed, 2½*d.*]

A.D. 1852, October 2.—Nº 164.

JOHNSON, John Robert.—"Improvements in fixing colouring matter of madder in printing and dyeing." "This invention consists in employing casein, albumen, or generally nitrogenous organic substances soluble in alkalies, for fixing " alizarine, the colouring matter of madder, upon textile fabrics." " And in carrying out this my said invention, I employ one of " the following modes: I cause the nitrogenous matter to combine with the cotton or fibrous material, to be subsequently " dyed or printed with madder colors, or I cause the nitrogenous " matter to combine with the colouring matter of madder, to be " subsequently employed in dyeing or printing the cotton." The cloth may be "prepared" with milk, from which the cream has been taken, diluted with eight times its bulk of water; and when dried the mordants may be applied, and afterwards dyed with alizarine; or the alizarine may be mixed with the nitrogenous substance, then applied to the cloth, and steamed with or without the previous addition, as the case may be, of mordants or alkali.

"Milk, soluble albumen, or one of the protein compounds" " may be used for the above purposes."

[Printed, 2¼d.]

A.D. 1852, October 2.—N° 174.

DUNCAN, Alexander Campbell.—" Improvements in the " art or process of dyeing cotton or other textile fabrics, or cotton " or other yarns, when printed or mordanted, with the colouring matter of madder, or of dyewoods, and in machinery or apparatus employed therein." This invention consists in "the " method or process of continuous or progressive dyeing." Continuous or progressive dyeing may be effected by attaching the goods end to end in a long " chain," and causing it to pass through the dye liquor, at a high temperature, contained in a suitable cistern, divided into compartments. The goods may be passed continuously over winces and pullies from one compartment to the other. The compartments may contain dye liquors of various strengths, so that the "chain" may work up from weaker or exhausted liquors to those not exhausted, and may be finally washed in the last compartment with water.

[Printed, 3¼d.]

A.D. 1852, October 5.—N° 237.

JAGER, Herm.—" Improvements in the treatment of cotton " and other similar fabrics, by the introduction of chemical agents " to supersede the use of dung in the dunging process." These improvements consist in "the application and use of the soluble " silicates as substitutes for dung in the well known operation of " the process termed dunging in calico printing and dyeing, after " the mordant or colours have been applied to the fabric to be " operated upon; and while I do not confine myself to any soluble silicate, I prefer the combination of silica and soda," as follows:—Take " 100 parts of sand, and 77¾ parts of soda ash," containing 56 degrees pure soda, both " dry, white, and of the best " quality, and as free from iron as possible," mix them well, and submit them " to a smelting heat, till all effervescence produced " by the escaping of carbonic acid has ceased." One part of the solution of the silicate so formed, standing at 14° T. may be mixed with about 40 or 60 parts of water, and used instead of the dung bath, with or without an addition of carbonate of soda.

[Printed, 3¼d.]

A.D. 1852, October 8.—N° 298.

HUGHES, Edward Joseph.—"An improved method of purifying and concentrating the colouring matter of madder, munjeet, and spent madder."—(A communication.)

To effect this, "add in a slow and careful manner, so as not to raise the temperature beyond about one hundred and twenty-five degrees Fahrenheit, one hundred parts by weight of a cold mixture of concentrated acid, to which twenty-five per cent. of water has been added, to thirty-five or forty parts by weight of spent madder, or of madder or munjeet, which madder or munjeet must be previously well washed, or fermented and then washed." "When the aforesaid mixture forms a paste or thickish substance, I dilute it with some water, and then throw it immediately into a large quantity of cold water, stirring it continually, and then wash the acid out." A little chalk or soda may be added to the last washing.

[Printed, 2½*d.*]

A.D. 1852, October 9.—N° 320.

SMITH, John and William.—(Provisional Protection only.) "Improvements in the method or process of dyeing woven or textile fabrics certain colours, and in machinery or apparatus employed therein." "Instead of the old and ordinary process of immersing or dipping the goods to be dyed in tubs, vats, or cisterns, by hand from one vessel to another, at an immense amount of manual labour, we make or use a long vat or vessel, with a number of chambers or compartments, in each of which we put the necessary liquid or mixture to produce the colour required, and by means of rollers or guide bars we pass the fabric to be dyed through one or more or all of the said chambers or compartments, as the particular case may be."

[Printed, 5½*d.*]

A.D. 1852, October 12.—N° 342.

MICHEL, François Alexandre Victor.—(Provisional Protection only.) "Stereotyping in copper by the galvano-plasty." "This process consists in the original or, better, mother idea which I have conceived to apply the galvano-plasty to reproduce

" in copper any engravings in relievo in general, either that they be " on wood standing, or on plate, or copper, or every other metal; " either that my process be executed upon any stereotypes of bitumens or of material for printing, which I would wish to have " reproduced again in galvano-plasty."

[Printed, 2½*d*.]

A.D. 1852, October 12.—N° 359.

GODEFROY, Leon.—" Improvements in covering or packing " rollers for printing fabrics." The Patentee claims "the attaching of an elastic and waterproof covering, such as is herein " described, to the pressure rollers used for printing fabrics;" " also, the manufacture of the elastic fabric described for covering " and giving elasticity to [the pressure?] rollers for printing " fabrics." These improvements consist in "covering printed " rollers [the pressure roller or bowl?], with one or more layers of " a compound fabric composed of felt attached to calico or woven " fabric by means of india-rubber; this fabric is attached to the " metal roller by means of paste or glue, the metal having first " been coated with varnish; the fabric is caused to adhere closely " to the roller by being wound round with a band of calico until " the cement is hard." "Such elastic fabric may be used as an " endless band or travelling apron," [as a blanket?] passing round the "printing roller" [the bowl?], to give the elasticity required.

[Printed, 2½*d*.]

A.D. 1852, October 13.—N° 364.

SMITH, Mathew.—(Provisional Protection only.)—" Improvements in machinery for weaving and printing." These improvements relate first, to " certain machinery for] forming " the loops of terry fabrics without making use of the long " wires usually employed for that purpose." Secondly, "to " printing warps by block machinery." "I propose making the " blocks with grooves, into which adjustable pieces are fitted; " by this means the pattern to be produced can be formed by " the adjustable pieces, which may be slidden to and fro in the " grooves, and their position changed with facility."

[Printed, 2½*d*.]

A.D. 1852, October 13.—N° 373.

COQUERELLE, Pierre Josephe Rousset.—(Provisional Protection only.) "The combination of certain chymical agents "for the replacing of indigo and other blues, which combination "I call 'Rousset blue.' "It is composed of oxide of iron, em"ployed at the different degrees of oxigination to which it is "reducible, sulphuric acid, muriatic acid, yellow prussiate of "potassa, or ferro-cyanide of potassium, and filtered water. The "oxide of iron being first brought to the required state of oxigi"nation is put in contact, first with sulphuric acid, and then with "muriatic acid, and filtered water is poured on the whole in a "separate vessel; yellow prussiate of potassa is made to dissolve "and the solution being brought to the proper degree of strength "it is poured upon the iron mixture. By this union of the two "mixtures an intensely blue color is produced, which being "relieved of the liquid part, is formed into a solid paste."

[Printed, 2½*d*.]

A.D. 1852, October 14.—N° 390.

SWINDLES, John, and NICHOLSON, William.—"Improve"ments in obtaining oxygen gas, and applying it in the manufac"ture of various acids and chlorine, for oxydating metallic "solutions, and for ageing and raising various coloring matters." This invention consists, first, in obtaining "oxygen gas" by aid of certain compounds, "and also the use of earthenware retorts, "or retorts of other substances lined with earthenware, as ap"plied to the manufacture of oxygen gas." The oxygen gas is obtained by heating in "a retort made of earthenware, or of "iron lined with earthenware," a mixture "of barytes with pow"dered silica, lime, magnesia, or alumina, or silicate of alumina, "or a mixture of all or any of these substances, or the barytes "alone," with a regulated admission of hot or cold air, till "the "protoxide of barium is converted into the deutoxide, commonly "called peroxide of barium." "We then raise the temperature "of the retorts by increasing the firing, and at the same time "allow a moderate quantity of steam, either at a low or elevated "temperature, to pass into the retort, until the oxygen gas, and "some small quantity of carbonic acid gas, arising from the use "of common air, together with vapour of water, is passed into

" the gasometer; the steam is condensed into water, and the car- " bonic acid present is removed by lime added to the water in the " gasometer."

" Secondly. The employment of oxygen gas, produced by arti- " ficial means, for producing the substances set forth (in the spe- " cification), and also for ageing and raising colouring matters." Oxalic acid may be produced by passing " streams of oxygen gas, " either pure or mixed with a portion of atmospheric air, through " the (usual) mixture of nitric acid and other matter and so, by the " conversion of the nitric oxide evolved, reproduce continually the " nitric acid until the operation is complete;" " or we pass the " oxygen gas along with the compounds of nitrogen and oxygen " produced in the manufacture of oxalic acid as usually con- " ducted, and by its agency recover the nitric acid so employed in " the manufacture." "Acetic acid or common vinegar" is produced by passing oxygen gas, alone or diluted with air, through suitable "saccharine solutions." Nitric acid or nitrous acid is produced by passing " nitrogen or any gaseous matter containing the " same, in conjunction with an excess of oxygen," "through " earthenware pipes heated to full redness, and filled with any " porous substance that will stand the heat and action of the acid " vapour produced." "By this process we produce deutoxide of " nitrogen, which is converted into nitric acid by being brought " into contact with oxygen gas and the vapour of water." " Chlorine" may be produced by passing "oxygen gas, pure or " mixed with air, through the chloride of manganese or iron at a " red heat;" or by adding to "hydrochloric acid" "half its " weight of common nitric acid," and then heating the mixture, so as to produce "chlorine and nitrochloric acid." The addition of oxygen and vapor of water, resolves the mixture into nitric acid and chlorine; "or chlorine may be produced by passing oxygen " gas into mixtures or solutions of hydrochloric acids, and the " oxides of manganese and iron in a liquid state, or by passing " the same through heated earthen ware tubes." "Sulphuric " acid" may be made by passing "oxygen gas" pure or diluted, " with vapor of water, and "sulphurous acid gas," through red " hot earthenware pipes filled with suitable porous material." Solutions of metals, such as persulphate of iron, may be "highly " oxidated" by passing oxygen gas through the solution. "We " also employ oxygen gas, either pure or mixed with atmospheric

" air, for the purpose of raising the colors employed for dyeing " or printing, either during the process of manufacturing such " colors, or after they are applied to the fabrics; in the latter case " by passing the goods through a vessel or room into which " the gas is admitted; or we impregnate water with pure oxygen " gas (we prefer distilled water), and this water we employ for the " above purposes."

[Printed, 3½*d.*]

A.D. 1852, October 14.—N° 391.

BOOTAREL, Eugéne André.—(Provisional Protection only.) " Improvements in ornamenting or applying color to fabrics."

" My invention consists in ornamenting or applying colors to " fabrics, by causing the color or colors to drop from a spout or " spouts at regulated intervals, or in a continuous stream, on to " the fabric. The fabric so colored or ornamented may afterwards " be printed upon in the ordinary manner."

[Printed, 2½*d.*]

A.D. 1852, October 15.—N° 400.

PINCOFFS, Simon, and SCHUNCK, Henry Edward.— " Improvements in the treatment of madder, and other plants of " the same species, and of their products, for the purpose of " obtaining dyeing materials." This invention consists, " firstly, " in the application of the combined action of watery vapor and a " higher temperature than 212° Fahrenheit, on madder, munjeet, " spent madder, garancine, or other preparations from madder or " other plants of the same species, for the purpose of obtaining a " coloring material. Secondly, in the combined action of strong " acids and watery vapor of a temperature above 212° F., on " madder, munjeet, and spent madder, for the same purpose." Madder, &c. being submitted to the action of high "pressure " steam" or vapour from water either pure "or slightly diluted " with an alkali" heated in a closed vessel to a temperature of about 300° F. for a period varying from five minutes to several hours, as the case may be, and then washed with cold water, pressed, dried, and ground into a fine powder, constitutes what the Patentees call "commercial alizarine." When madder in any state has been thus submitted to the action of high pressure steam, it is advisable after the steaming or heating process has been completed, "to subject them to the operation usually em-" ployed for making garancine or garanceux." "We prefer, " however, making our 'commercial alizarine' by putting the " substance used first through the usual garancine process, and " then submitting the product to the action of high pressure steam " at 30 lbs. to the inch, to be continued for fourteen hours or " more."

Secondly. The madder, spent madder, &c., may be placed in a closed vessel with the requisite quantity "of a watery solution of " strong acid," and submitted to the action of high pressure " steam for several hours." The product is then washed with cold water, pressed, dried, and ground into powder. "Commer-" cial alizarine may be used as a dyeing matter without the after " ordinary processes of soaping, branning, &c."

[Printed, 3½*d*.]

A.D. 1852, October 15.—N° 406.

BLAIR, Andrew.—"Improvements in printing or ornamenting " fabrics." These improvements consist "in the system or mode " of printing the two sides or surfaces of cloth or other fabric or " material with exact counterpart patterns or devices; and in the " application and use of exact counterpart surface rollers or " printing surfaces, for the simultaneous printing of the two " sides of cloth or other material." "This is accomplished by " employing two exact counterpart surface printing rollers, geared ' together, and each supplied with the necessary color, such " duplex arrangements being multiplied for (the purpose of) " printing several colors."

[Printed, 5½*d*.]

A.D. 1852, October 21.—N° 477.

GOVER, Henry Charles.—"Improvements in the apparatus " used in printing with colours." The peculiarity of these improvements consist of the combination in the details of the machine (described in the specification) "whereby a number of " plattens or pressing surfaces are arranged equi-distant from a " common centre, and are combined with a rotating table or " apparatus for moving the paper or fabric, and with inking

" apparatus as described." "The parts are so combined that according to the number of colors (in succession) which the press is " intended to print so is the number of plattens or pressing " surfaces, at equal distances from a common centre. On to " these plattens the blocks or printing surfaces are formed or " fixed, and there is an inking apparatus to apply color to each " of the printing surfaces, which act each time after the printing " surfaces have operated. The several pieces of paper or fabric " are placed in succession on to suitable surfaces formed or " affixed to a rotating table, there being as many such surfaces " on the table as there are plattens or pressing surfaces, so that " at each rotation of the table all the colours and impressions of " the several blocks will be printed; and in order that every " piece of paper or fabric may in succession receive an impression " from all the printing surfaces, the table is caused to move each " time a distance equal to that between two neighbouring printing surfaces, so that at the next time of action the first printing " surface gives its impression to a fresh supplied piece of paper or " fabric, and all the other pieces of paper or fabric previously " in the machine are carried forward one stage." The inking rollers are carried by a circular table which is caused to move to and fro, and are of a conical form to suit the circular motion.

[Printed, 6½*d.*]

A.D. 1852, October 22.—N° 491.

WILSON, James.—(Partly a communication.)—" Improvements " in printing fabrics of silk, or partly of silk." These improvements consist in applying the ordinary well-known colours, by means of the usual methods of printing, to fabrics where the " pile is composed of silk," and where it has been woven, " as heretofore, without pile, and then raising the pile, either " before or after printing, and finishing the printed piled " surface thus obtained." Such fabrics are commonly called " tissue." The fabric may be prepared with "muriate or " oxymuriate of tin, at 2° T.," properly washed, brushed to lay the pile, and dried. Previous to printing, the pile is laid even and smooth by brushing, and is callendered, and then has a weak solution of " gum dragon " applied, "which holds down the pile during " printing." The printed fabric is afterwards steamed, washed, and dried; then dressed " and delivered to the warehouse."

[Printed, 2½*d.*]

A.D. 1852, October 23.—N° 503.

HISCOCK, Albert.—(Provisional Protection only.) "The "application of ornamental printing to certain fabrics which have "hitherto not been printed upon." My invention consists in the "adaptation of ornamental printing to certain descriptions of cot-"ton fabrics which have not hitherto been printed upon, namely, to "all descriptions included under the title of cotton nets;" and in the application of any such "descriptions of fabrics, when so "printed upon (by the ordinary blocks or rollers), to any of the "various purposes for which they are usually employed in house-"hold furniture, articles of dress, or otherwise."

[Printed, 2½*d.*]

A.D. 1852, October 26.—N° 530.

PAGE, Henry.—(Provisional Protection only.) "Improvements "in paper staining." "I construct an apparatus suited to the "pattern to be produced, divided into compartments and filled "with the colours required; I press this apparatus on the sieve, "where it deposits sufficient color in patches, to be taken up by the "block."

[Printed, 2½*d.*]

A.D. 1852, October 28.—N° 549.

DONKIN, Bryan, the Younger, and FAREY, Barnard William.—"Improvements in the machinery for measuring or "marking off long lengths or continuous webs of paper or other "materials into any required lengths, for the purpose of being cut "or otherwise disposed of." These improvements may be effected by means of a roller, rod, or lath, placed or attached, at each end, to the arms of a pair of levers, which are caused to vibrate up and down, carrying with them the roller and the desired length of paper to be measured, by means of a crank and connecting rod. The paper to be measured is placed over two small tables, upon each of which is a clamp board, which holds the paper on the tables. One of the clamp boards is then elevated by means of cams and rods, and the roller caused to descend between the two tables and carry the paper down with it the desired distance. The clamp board then descends, and the roller rises to its original position. The other clamp board on the other table is, at the same time, elevated to allow of the measured portion of paper to be drawn forward by "feed rollers" towards the cutters, and then to descend again on to its table. The first clamp board is again elevated from its table, and the roller descends as before.

[Printed, 1*s.* 2½*d.*]

A.D. 1852, November 1.—Nº 592.

DIXON, George.—"An improvement in bleaching palm oil." The Patentee bleaches "palm oil by passing free or naked steam "through it while in a fluid state. The palm oil to be bleached is "placed in a wide and shallow vessel, on the lower surface of "which are placed several pipes pierced with a considerable number of small holes, and supplied with steam from a boiler. The "steam, being admitted into the pipes, first heats them by its "condensation, and then melts the oil if it is in a solid state, and "afterwards pushes through the small holes, and, passing through "the liquid oil, escapes." It is preferred "to expose the surface "of the oil to air and light during the operation," which may last "from six to twelve hours."

[Printed, 4½*d.*]

A.D. 1852, November 4.—Nº 640.

KLOTZ, Marc.—"An improved process and apparatus to be "employed in ornamenting fabrics, leather, paper, and other "surfaces." This process consists in attaching to the material to be ornamented, objects "cut out of tissue, cloth, leather, paper, "or any substance that can be cut or moulded," by means of a suitable cement; "gum lake" dissolved in spirits of wine, being preferred for that purpose. A metallic guide having the desired ornamental form cut out of it is placed on the material, and the cut ornament being placed therein, a heated "goffer" or iron die with suitable designs "in hollow" therein is brought down and pressed by suitable means. This will emboss the ornamental shape, and cause it to adhere also to the material by melting the cement.

[Printed, 2½*d.*]

A.D. 1852, November 6.—N° 660.

NICHOL, JAMES.—" Certain improvements in the process of " graining or ornamenting surfaces and fabrics." The Patentee claims the mode described of " graining or ornamenting surfaces " and fabrics by means of the stereotyping process." A cast is taken in " suitable plastic or elastic substance " from the " grained or ornamental surface of which it is desired to " multiply copies." The impression so made is then transferred to a " mould of stucco, or papier maché, or other suitable material, " by means of the ordinary process of stereotyping." From this a cast is taken in metal which may be applied " to the surface " either of a plate or a roller."

[Printed, 2½*d*.]

A.D. 1852, November 11.—N° 715.

WYPER, JAMES COWAN.—(Provisional Protection only.) " Improvements in the figuring and ornamentation of book bindings " and covers of a similar character." Relating to the " ornamenting " and lettering or figuring of bindings or covers for books, portfolios, " desks, and other articles; also leather, paper, and cloth surfaces," " by lithographic or block printing as a substitute for the ordinary " tooling " and embossing. Different coloured " inks, gold, or " other leaf, or bronze may be applied." The same may be performed by means of " zincographic, anastatic, or other modifica- " tion of the common lithographic processes."

[Printed, 2½*d*.]

A.D. 1852, November 13.—N° 731.

DAVEY, EDWARD.—" Improvements in the preparation of " flax and hemp." This invention consists, firstly, in a mechanical mode of effecting the separation of the fibres of flax and hemp " in lieu of the retting or steeping process." Secondly, in a novel arrangement of " gill or heckling machine." Thirdly, in a novel arrangement " of machinery for effecting the breaking of the " fibres of flax and hemp."

And, lastly, in the " mode of operating upon the sliver or " roving for effecting the bleaching of the same." " The roved "staple is then wound upon reels, to form them into hanks, and "these hanks are strung upon a fluted wooden roller set above a "vessel containing water or any suitable kind of bleaching liquor, "and at such a distance therefrom as will admit of the hanks "dipping into the water or other liquor. Above this roller I set "a wooden pressing roller, which is also fluted; and as these "rollers are caused to rotate by a winch handle, or other means, "the hanks will be gradually passed through the water or bleaching liquor, and carried upwards under the bite of the rollers, "whereby the liquor, and the color which it has dissolved out or "removed from the fibre, will be expressed from the staple." After this treatment the staple may be "exposed to the action of "the atmosphere in bleaching grounds."

[Printed, 1*s*. 2½*d*.]

A.D. 1852, November 15.—Nº 753.

SANDIFORD, Robert.—"Improvements in apparatus for block "printing."

The Patentee claims "improved apparatus for block printing, "or any modification thereof, but more especially the parallel links "for ensuring the perfect 'registering' of the pattern or design to "be printed." "The apparatus consists of the following parts: "first, a stone or other suitable printing table is supported upon "a frame, and covered with a blanket or similar elastic surface for "printing upon. The framing also supports the sieves (one at "each end, if two blocks are employed). The blocks are light, "and are connected together by means of a frame or hand rail, by "means of which they are both lifted together. The blocks are "connected to the framing by means of four or more parallel "links, capable of moving upon fixed centres, the length of each "of the said links being exactly half the distance of the centre of "the sieve from the centre of the printing table. The hand rail "which connects the two blocks together, and the links which "connect the blocks to the frame are so adjusted that when one "block is printing the design the other block is being furnished "with color by its respective sieve, and vice versa." The blocks are worked by the printer, and in passing to and from the sieves and table are caused by the parallel rods to describe an "arc of "about 180°."

[Printed, 6½*d*.]

A.D. 1852, November 19.—N° 782.

VERNON, John Venables, and **EDGE**, John.—(Provisional Protection only.) "Improvements in apparatus and machinery "for engraving rollers of glass, copper, brass, and other metallic "compounds." "The object of this invention is to dispense "with the ordinary process of painting, sulphuring, tracing, or "line engraving, and to substitute our improved mechanism for "the accomplishment of these objects." The mechanism is generally described as "the application of figured or plain cylinders "made of iron, copper, brass, or other metals, or other substances "in combination with wheels of a peculiar form and arrangement" for actuating certain mechanism for the formation of figures on rollers.

[Printed, 2½*d*.]

A.D. 1852, November 19.—N° 786.

BURGESS, John.—"An improvement in dyeing wool."

This invention consist of using bent rods, or cords, or other "instruments, to lower the hanks of wool wholly into the dye "liquor." "I employ rods which are bent or cranked near their "ends, so that the middle portions or parts intermediate of the "cranks or bends may descend into the liquor, whilst the ends "of the rods rest on the upper part of the dye vessel;" or, "straight rods may be lowered in like manner by cords at the "ends into the dye." "By this arrangement the whole of the "wool will descend into the dye liquor, and be covered thereby, "which will be found very advantageous, particularly in dyeing "blacks and browns, and other colors where they do not settle to "the bottom of the dye vessel."

[Printed, 2½*d*.]

A.D. 1852, November 19.—N° 793.

JOHNSON, John Robert.—"Improvements in the manu"facture of type or raised surfaces for printing."

This invention consists in "the use of zinc and of the alloys of "zinc more fusible than this metal for the purpose of casting "printing type and other raised surfaces suitable for printing." "The alloy of zinc which I prefer for this purpose is that formed "by fusing together" "33 parts of zinc with 59 parts of tin."

Zinc may be used "alone," or mixed with "lead," "tin" "antimony," "type metal," &c. in various proportions. "Surfaces for " printing may be also formed of the alloys of zinc by the " cliché, or 'dabbing' process by adopting the well known ap- " paratus and manipulations at present employed."

[Printed, 3½*d.*]

A.D. 1852, November 20.—N° 800.

TAYLOR, RICHARD.—" Improvements in heating dye cisterns " and soap cisterns used in the process of calico printing." These improvements consist "in heating such cisterns by means of " steam chests, without allowing the steam to mix with the dye " liquor or soap liquor;" which is carried into effect "by the " introduction of one or more steam chest, coils of piping, or " similar apparatus for containing steam, into the dye cistern or " soap cistern, so that the liquor becomes more uniformly heated " without being weakened by the admission of steam (condensed) " as heretofore."

[Printed, 2½*d.*]

A.D. 1852, November 20.—N° 809.

GREEN, WILLIAM.—" Improvements in the manufacture of " textile fabrics, and in machinery or apparatus for effecting the " same, parts of which improvements are applicable to printing " and embossing generally." These improvements consist, firstly, in a mode " of producing silky or glossy effects upon textile " materials, or upon the inferior parts only thereof, by the peculiar mode of weaving and embossing or printing." "In weaving " I so regulate the throwing of the weft or the arrangement of " the warp that two or more threads of the same material shall lie " together," "so as to obtain a fabric at one portion of which there " is more of one material than at another portion thereof." The fabric so woven is printed or embossed, and the more "compressible material" will thereby be caused to appear different from that of the more elastic material.

Secondly, in a mode " of covering one side of cotton yarn or " other fibrous material with metallic powder." The yarn to be covered on one side, on its passage from one roller to another is coated on one side by a third roller with suitable adhesive matter;

"the threads are then brought in contact with another roller "the surface of which is charged with metallic powder."

The Patentee also claims "covering cotton yarn or other fibrous "materials with silk waste; covering cotton or other yarn with "small filaments of glossy fibrous materials, as asbestos, wool "or hair; and the covering or partly covering cotton or other "fabrics with 'slivers' or small filaments of 'silk waste,' or "other glossy material," "by means of any suitable adhesive substance." The thin fleecy sliver made from silk waste is brought in contact with and pressed against the threads covered with adhesive matter. The threads are then separated by suitable cutting apparatus, they may then be slightly twisted and rounded, and finally woven either alone or in connection with other materials.

Lastly, "the machinery or apparatus described for producing "glossy or silk effects upon fabrics manufactured of textile "materials, and the application of the same to printing and embossing generally." The printing blocks, which may be solid or hollow, through which the colour or varnish will pass by "gravitation or capillary attraction," are pressed on by the "plattens," which are actuated by wedges worked by a powerful lever and cranks. The colour is supplied to the blocks by means of furnishing rollers which may be of the ordinary kind, to which a traverse motion may be given. To the machine for printing may be attached a box to contain the bronze, an endless band dipping therein, and rollers to apply it to the yarn or fabric; and also a paper bowl and metal roller for the purpose of "embossing or "milling it." Suitable mechanical means are employed to cause the fabric to progress when required.

[Printed, 5½*d*.]

A.D. 1852, November 24.—N° 839.

HIGGIN, James.—"Improvements in the manufacture of "certain mordants used in preparing woven or textile fabrics for "printing, staining, or dyeing them, and in the mode or method "of using the same or other mordants for the said purposes." This invention consists, "firstly, in the manufacturing alumino-"stannates of an alkali to be applied to the ordinary purposes "for which stannates of soda are employed." The alumino-stannate of soda may be prepared by adding to stannate of soda in solution aluminate of soda also in solution, "in such proportion

" that for every fourteen pounds of metallic tin in the stannate " solution there shall be one pound of alumina."

"Stannite of soda" may be added if desired. "The solution " may be boiled down to a state of dry powder, which will require " only to be redissolved in water." The solution so prepared is used, when diluted to 12° T. by padding in the usual way. "In " some cases it may be convenient to pad the goods in stannate of " soda, as at present, and, instead of sulphuric acid, to use dilute " solution of an aluminous salt, or to put a portion of an aluminous salt into the sulphuric sours; or the goods may be padded " in alum solution first and afterwards in stannate of soda, souring or not, as may be requisite."

"Secondly, in the manufacturing compound acid mordants " containing a salt or salts of alumina, and a salt or salts of tin in " combination, to be used as the chlorides of tin are used in " the arts of dyeing and calico printing;" by adding to any of the chlorides of tin chloride of aluminium.

"Thirdly, the fixing any compound of alumina and oxide or " oxides of tin on the fabric, by padding or immersion previously " to printing or dyeing."

[Printed, 3½*d.*]

A.D. 1852, November 24.—N° 847.

THOMSON, Henry.—"Improvements in apparatus to be used " in dyeing, bleaching, and other processes in which goods are " operated upon in the piece." "These improvements relate to a " novel method of conveying bands of piece goods through dyes, " bleaching matters, or other substances. The peculiar feature " consists in passing a band of the goods over a roller or rollers, " or other apparatus capable of being turned, and in such manner " that it shall be wound in a spiral form, the two ends being joined " together so as to constitute an endless rope. The goods, however, are not wound tightly upon the apparatus, but are allowed " to loop down, so as to present loose portions to the action of the " dye or other matters. By this means endless bands of goods " may be obtained of considerable length, by joining together any " practicable number of pieces. The form of apparatus to be " employed will be varied to a certain extent, according to the " process to which this invention is to be applied." It may consist of an ordinary dye vessel, in which all the pieces to be dyed are attached end to end. They are entered at one end, and caused to progress, by means of division guide rods, to the other, leaving a slack at each division. The two extreme ends of the pieces are then attached and guided by rollers, so that the process becomes continuous. "The same system may be adopted for dunging, " soaping, chymicing, washing, or other similar operations."

[Printed, 4½*d.*]

A.D. 1852, November 26.—N° 877.

COOK, Thomas Ainsley.—"Improvements in bleaching." " In all bleaching operations where chlorine is employed, it " becomes necessary to take up or neutralize any chlorine that " may be in excess. Now, my invention consists in the use of " any of the following salts:—Hyposulphate of lime, of soda, of " ammonia, of potash, of magnesia, or of alumina, which I apply " to the goods, after being treated with chlorine, when the hyposulphite used will neutralize any excess of chlorine that may " remain in the material bleached."

[Printed, 2½*d.*]

A.D. 1852, December 3.—N° 952.

McNEE, Duncan.—"A machine for printing with colours on " cloth, which is also applicable for printing ornamental designs " on paper." "The nature of my said invention consists of a " combination of two or more surface printing rollers, with certain " mechanical parts, by which a machine is constructed capable of " traversing the fabric to be printed, and by which the different " parts of the pattern on the several rollers are made to fit with " correctness." The surface rollers are supplied with colour by means of endless sieves, and their axes are so connected by cranks and bars, that they must revolve with perfect uniformity and exactness as they traverse over the surface of the fabric to be printed.

[Printed, 5½*d.*]

A.D. 1852, December 9.—N° 1005.

KOPP, Emile, and GATTY, Frederick Albert.—"Improvements in printing or dyeing textile fabrics." These improvements consist, "firstly, in the application or combination of arsenic

" acid, together with the other materials used in the preparation " of steam colors." Secondly, in the application of arsenic acid " to Turkey red or other dyed cloth, for the purpose of causing " the discharge of its dye or color. And, lastly, in the application " of phosphoric acid to Turkey red or other dyed cloth, for the " purpose of causing the discharge of its dye or colour." For the sake of convenience in practice, the arsenic acid and phosphoric acid may be reduced with water to a density equal "to " about 170° T.;" or they may "be used dry or in powder." Practically from one pound to one pound and a half of these acid solutions may be substituted for one pound of tartaric acid, as the case may be, whether for the preparation of colours usually called " steam colors," or for discharging "Turkey red or other color " of previously dyed cloth."

[Printed, 2½*d.*]

A.D. 1852, December 15.—N° 1061.

D'HOMME, Phillipe.—"Improvements in the manufacture of " window blinds, curtains, and hangings." These improvements consist "in manufacturing window blinds, curtains, and hangings, " by printing them with oil colours," on cloth, which may or may not "be previously rendered transparent;" and also, in varnishing said printed hangings, &c., with "a solution of caoutchouc." The plate by which the printing is effected is made of zinc, and the design is raised on its surface by means of etching with a "solu- " tion of gallnuts," to which has been added "gum tragacanth," " nitric acid," "alum," and "hydrychloric acid." The ink or " color used is an oil colour, and of the nature of printing ink." There may be several plates used, and of large size, namely, six feet long and four or five feet wide. "When it is required to give " greater transparency to the cloth, it is prepared before printing " by a solution of gum tragacanth, which gives it stiffness and " transparency. After the printing is completed, the cloth is " covered with a thin coat of a solution of caoutchouc in turpen- " tine, on the opposite side to that which has received the impres- " sion." "The press employed, which is worked similarly to a " lithographic press, may be fifteen or twenty feet long, and seven " feet wide."

[Printed, 5½*d.*]

A.D. 1852, December 15.—N° 1065.

MASON, John.—"Improvements in the processes of bleaching " and dyeing textile materials and fabrics." The object of this invention is to bring such fluids as are used in "the processes of " bleaching and dyeing cotton, wool, silk, flax, and other textile " materials," "into more intimate and speedy connection with " the goods than is now practicable. For this purpose I operate " upon them in closed vessels, from which the air, or a portion " thereof, is extracted by an air pump, or by other means; and " after this, if necessary, I apply hydraulic, atmospheric, or other " pressure, in order to cause a more effectual saturation. The " form and construction of apparatus to be employed may be " varied to a considerable extent. In carrying out the principle of " this invention, the goods may be treated in vessels similar to " keirs, closed air-tight, or in dye becks covered with air-tight " covers."

[Printed, 5½*d.*]

A.D. 1852, December 16.—N° 1075.

BARLOW, Charles.—(A communication.)—"Improvements in " bleaching, purifying, and concentrating sulphuric acid, parts of " which invention are applicable to evaporating other liquids." These improvements consist in "covering the boiler which receives " it [the sulphuric acid] from the leaden chambers with a moveable " cover of lead, the edges of which plunge into the acid, and under " which I cause a current of sulphurous acid gas to circulate. " This acid gas combines with the red vapours of the hyponitric or " hypoazotic acid, which are disengaged by the heat, and forms " again liquid sulphuric acid, which remains in the boiler. I " cause the residue of the sulphurous and nitrous gases which " are not combined to pass into the pipe of the great sulphur " furnace, whence they are carried back into the leaden chambers. " In this mode I effect the bleaching and purification of sulphuric " acid without injury to workmen in the neighbourhood, and I " avoid the heavy loss of the nitrous products." "The sulphuric " acid thus bleached and purified is afterwards conducted into a " second evaporating boiler of lead, to be there concentrated." This "evaporating boiler" "has a moveable condensing capital or " cover suspended by cords passing over pullies, in order to raise

" it to the proper height to permit the atmospheric air to circulate " over the surface of the liquid," " and is surrounded on its " lower interior margin by a gutter, into which flows the liquid " which is condensed upon the whole interior surface of the " capital." By this mode the rate of evaporation is accelerated, and the nuisance arising from the escape of vapours is abated.

[Printed, 5½*d.*]

A.D. 1852, December 18.—N° 1103.

SCHISCHKAR, Edward.—" Improvements in dyeing and " colouring yarns and textile fabrics." This invention consists in imparting to "the materials treated a bright metallic lusty ap- " pearance." " I introduce into the dye bath, or into the colours " used for printing the yarns or textile fabrics, a quantity (more " or less, according to the effect to be produced) of sulphate of " copper; and I submit the articles so dyed or coloured to the " action of steam, or steam impregnated with nitro-muriate of tin, " in an apparatus or box hermetically closed, so as to prevent the " access of air during the steaming operation, which I continue " for from one to two hours, or until the articles exhibit a metallic " lustre. The subjecting the articles to the action of steam im- " pregnated with nitro-muriate of tin may be effected in various " ways; for example, by placing the goods or yarns in a closed " box, over a blanket or flannel soaked in a solution of the nitro- " muriate of tin, and then passing steam over their surfaces; or " by saturating the articles themselves with a solution of the salt, " and then submitting them to the action of steam in a closed " box or apparatus; or other modes of proceeding may be " adopted."

[Printed, 2½*d.*]

A.D. 1852, December 18.—N° 1,104.

SCHISCHKAR, Edward.—" Improvements in colouring or " staining yarns and textile fabrics." This invention consists in " producing a speckled effect upon woollen, linen, worsted, cotton, " or silk yarns and textile fabrics by means of cylindrical brushes " made to revolve in front of the yarn or fabric, and dip into " baths or troughs of colouring matter." The yarn is caused to pass in front of two brushes revolving, the brushes may be made of " India bassweed."

[Printed, 4½*d.*]

A.D. 1852, December 21.—N° 1118.

D'ALBERT, Ferdinand.—"A certain chemical combination for " replacing indigo, which I call "D'Albert blue." This invention consists in "the obtaining oxide of iron at the highest point " of igneous oxidation, the combining this with sulphuric and " muriatic acids, and the mixing this compound with hydro-ferro- " cyanate of potash so as to obtain a colouring matter; also, in " the combination of the colouring matter herein-before described " with sulphate of indigo, oxalate of potash, and gum arabic." The oxide of iron is obtained in a proper state by heating "sulphate " of iron," "alum," and "rosin," "to a white heat, when it be- " comes liquid;" this mixture is then treated with "sulphuric acid" and "muriatic acid," to which may be added "clear rain water." To this solution is added a solution of hydro-ferro-cyanate of potash, and the blue precipitate formed is washed and allowed to settle; it is then filtered and drained to a paste. The blue so formed is dissolved in "sulpho-muriatic acid," "formed by mixing one volume " of concentrated commercial sulphuric acid with four volumes of " concentrated muriatic acid." This solution is diluted with water, and the acid neutralized "by means of an alkali, pre- " ferring ammoniacal gas." The precipitate is washed, drained, and collected as a "cake or paste."

"For dyeing woollens, I add, to my blue, sulphate of indigo." I also "prepare a solution of gum arabic, and of oxalate of potash " which has been moistened with sulphuric acid" to which "blue " paste" and "tartrate of potash" is added. "For dyeing silk I " mix with my blue, alum, and, when required, tartrate of potash, " or cochineal of commerce, as dyers mix them with the ordinary " sulphate of indigo dye." "For dyeing leathers, I add to it " alum, carbonate, and subcarbonate of lime." "For printing " stuffs, gelatinous matters, gumarabic and alum should be " added; "and paper may be dyed by my blue without addition " of other substances." It may be used in an undissolved state mixed with "dyer's woad" "for dyeing in baths;" it is also "ap- " plicable for painting."

[Printed, 3½*d.*]

A.D. 1852, December 28.—N° 1178.

MUCKLOW, Edward.—" Improvements in machinery or appa- " ratus for cutting or rasping dye-woods." These improvements consist in "the application, employment, or use in such machines " of whatever construction, whether 'barrel rasps' or 'plate " 'machines,' of a stationary knife or cutter, placed at such an " angle immediately below the extreme edge of the log as shall " prevent splintering, and accomplish the perfect cutting of " the same." "The stationary bar knife or cutter of metal " is to be placed at an angle of about 45°, immediately below " the lower edge of the log of dye wood under operation, and " which thus acts as the lower blade of a pair of shears, and so " causes the wood to be cut clean through, leaving no uncut " portion or splinters."

[Printed, 6½*d.*]

A.D. 1852, December 29.—N° 1191.

NEWTON, William Edward.—(A communication.)—"Im- " provements in the manufacture of carpets." The Patentee states that the novelty in the present invention or improved manufacture is,—"An ingrained plyed printed carpet, made by a combination " of the processes of weaving in two or more plys, and ingraining " the same, and subsequently printing the figure or figures on " both sides of the same as described; the discovery having been " made by the inventor of the present process, that the plying " process prevents the colors printed on one ply from penetrating " through to the other ply, so as practically to injure its other " surface to an extent which renders it unfit for the reception of " colors and use as a carpet, as herein-before stated;" "also, in " a single ply carpet, woven as above described, and printed " upon one or both sides in manner substantially as herein set " forth." The mode of printing on the improved fabrics and carpets, the manufacture of which is fully described in the Specification, appears to be that which may be most suitable to the particular case. Carpets so woven may be printed on one or both sides, with the same or different patterns.

[Printed, 4½*d.*]

1853.

A.D. 1853, January 3.—N° 11.

BLEAKLEY, JOHN, junior.—" Improvements in machinery to " be used in washing, bleaching, dying, and sizing yarns and " fabrics." This invention consists in "placing a series of winces " having each four or other suitable number of arms and cross " rails in a cistern containing water or other fluid, and in causing " the yarn or fabric under operation, to pass under and over the " rails of the said winces, the axes of which are so near to each " other that the rails of each wince in revolving, pass between " the rails of the adjoining winces, thereby producing the required " effect on the yarns or fabrics to be operated upon." Two or more of the above winces may be placed in a cistern and partially immersed in water; as the cloth passes round and between them, the rails beat it violently, and effect the object desired.

[Printed, 6½*d.*]

A.D. 1853, January 12.—N° 87.

CAPPER, JOHN, and WATSON, THOMAS JOHN.—" Improve-" ments in preparing and bleaching jute and other vegetable " fibres." The jute or other vegetable fibres are first boiled or scalded for two hours in a " chemical solution composed of any " of the following substances (viz.): soda, carbonate of soda, " chloride of soda, muriate of soda, oxide and hydrate of soda, " carbonate of potassa, chloride of potassa, bitartrate of potassa, " nitrate of potassa, oxide of potassa, hydrate and hydrated oxide " of potassa, carbonate of ammonia, nitrate of ammonia, sulphate " of magnesia," in the proportion of 140 lbs. of any of these chemicals, from half to two tuns of water, to one ton jute or other fibre; or muriatic, chloric or sulphuric acids may be employed as the steeping agent. The jute, &c. after being drained out of the steep is transferred into a "bleaching bath, prepared by the " admixture of 560 pounds of chloride of lime, soda, or magnesia " in two tuns of cold water, for every ton of jute, &c." " In this " solution the material is allowed to remain for twenty-four " hours; it is then withdrawn and washed in water and dried."

The jute, &c., may afterwards, if greater purity of colour is desired, be steeped in weak sulphuric or muriatic acid; or it may be exposed in a chamber to the action of chlorine gas.

[Printed, 2½*d.*]

A.D. 1853, January 18.—N° 128.

NEALE, Robert.—"Improvements in the process of copper and "other plate and cylindrical printing, and inking and wiping and "polishing by machinery the engraved plates and cylinders whilst "used in the process." The Patentee claims "the combining "apparatus herein explained for inking, wiping, and polishing "engraved plates and cylinders used in copper and other plate "and cylinder printing." The inking is performed by three colour or furnishing rollers working over each other; the lower one works against a straight edge, being the bottom of the colour trough, which may be divided by partitions and supplied with several colours, and "the supply can be regulated by screws "more or less pressing each ink trough to or from each lower "inking roller." "The upper inking roller inks the engraved "plate; it is made of pieces of soft cloth placed on an iron shaft, "and afterwards turned in a lathe to be rendered true." "Stencils," which "may be made of thin sheet brass or other suitable "material, with forms and designs cut in them corresponding "with forms and designs on the engraved plate, are caused to "move and work in connection with the upper inking rollers, and "pass between them and the engraved plate, whereby a variety of "colours may be printed from the same plate at the same time."

The "wiping and polishing" may be effected by a "revolving "wiper or belt," made of "leather or other suitable material, and "it may be lined with flannel or other soft fabric;" or the wipers may be circular soft rollers, covered with leather or other suitable material. The "wipers and polishers" may be cleaned by scrapers, and by "moveable belts of cotton sheeting" caused to work against them.

[Printed, 1*s.* 1½*d.*]

A.D. 1853, January 22.—N° 161.

MALEGUE, Louis Jules Joseph.—"A certain colouring com- "position for dyeing tissues or stuffs of silk and cotton." A colouring composition for dyeing rose colour may be prepared as follows:—" I dissolve four ounces of ammoniacal cochineal in " a quart of hot water, and boil the solution for ten minutes. I " then add 88 grains of salt of tin, 140 grains of crystals of tartar " or bitartrate of potash, 1 oz. of saturated aqueous solution of " sulphurous acid, and 140 grains of the solution of tin. The " whole is boiled for about half an hour, and then allowed to cool " in a glass or earthenware vessel, and afterwards decanted into " another vessel. Two ounces of the carmine of safranum are " then added, and well mixed with the solution." In dyeing a sufficient quantity of this composition is mixed with hot water, " and tartaric acid is added in the proportion of about one ounce " to 8 or ten gallons of water."

In applying the composition for dyeing purple, " I employ " 350 grains of the solution of tin, in lieu of the 140 grains, and " I employ one ounce and a quarter of carmin of safranum, in " lieu of two ounces."

" The 4 ounces of ammoniacal cochineal may be replaced by " 3 oz. of ammoniacal cochineal and 3 oz. of raw cochineal."

" Carthamus, or the bastard saffron of lower Egypt, is prepared " by steeping it several times in succession in distilled or nearly " pure water, by which means the yellow colouring matter is " dissolved and removed, while the red colouring matter remains. " This red colouring matter is treated with a solution of sub- " carbonate of soda; and when the colouring matter has subsided " to the bottom it is pressed, and then dissolved in a solution of " citric acid. I prepare the solution by dissolving nine parts, by " weight, of pure tin in a mixture of five parts aqua fortis, or " nitric acid, and eighteen parts of spirits of salt, or muriatic " acid." " The salt of tin may be prepared by dissolving pure tin " filings or grains in muriatic acid, to which has been added one " fifth part of its weight of nitric acid, and then evaporating the " solution in a water bath until the salt of tin is obtained in " a solid state." " The cochineal ammoniacal employed is prepared " by boiling finely-ground cochineal in twice its weight of a " solution of ammonia for several hours. The mixture should be " well stirred, and when it becomes thick it is placed upon a cloth " and dried in the stove."

[Printed, 2½*d*.]

A.D. 1853, January 25.—N° 191.

SIEVIER, Robert William, and WAITHMAN, Robert William.—(Provisional Protection only.) "Improvements in "bleaching animal and vegetable fibrous materials." "These "improvements consist in the use of certain chemical matters in "different combinations, according to the material operated upon, "and other existing circumstances, which are too various to "be described in this provisional specification." The Patentees propose to use "acetates," "muriates," and "sulphates," or the "salts of metals," "chlorine," or "chlorides," and "sulphurous "acid gas," or "sulphuric," "nitric," or "muriatic acid," to be applied in open or closed vessels, in vacuo or under pressure; also ammonia, oxalates, or borax. "We occasionally assist the "process by the aid of electricity."

[Printed, 2½*d.*]

A.D. 1853, January 28.—N° 214.

KOEFFLER, Louis Christian.—"Improvements in bleaching and dyeing." This invention "relates to conducting pro"cesses of bleaching and dyeing within closed vessels, and "consists, firstly, in connecting together two or more apparatus "within which the goods to be treated are placed; the ley or other "liquor to operate upon them is then introduced to one of the "vessels, and allowed to act upon the material during the desired "time; after which the communication with the next vessel is "opened, and the liquor passed therein, where, having operated "as in the first, it is conveyed in succession to the others of the "series, if such be used. After this, the communication may, if "desired, be opened in the reverse direction, and the liquor allowed "to travel backward, operating as before in each vessel for any "desired time. Secondly, my invention consists in the appli"cation of steam within closed vessels for operating upon goods, "when saturated with ley, in process of being bleached; this part "of my invention may, if desired, be combined with that already "described. Thus, for instance, after the ley has been driven from "the first vessel, and the communication between it and the next "closed, I admit steam to the goods, and allow it to act upon them "for a time, according to the amount of cleansing required; the "like operation subsequently taking place in reference to the

“ others of the series. Thirdly, my invention consists in perform- “ ing the several processes of bleaching yarn, or two or more of “ such processes, within the same vessel. Thus, for instance, I “ submit the goods to the action of the ley, as described in re- “ ference to the first part of my invention; after which the liquor “ is passed to a second keir or vessel, there to operate upon another “ quantity of goods; during which second using of the ley I “ submit the goods in the first chamber to the action of chlorine, “ forcing it through them and into the second vessel (the ley having “ been extracted) by air or pressure; and in like manner I perform “ the other operations, as souring, &c., so as to perfect the bleach- “ ing of one lot of goods in one vessel; if desired, however, two “ or any other number of the requisite processes may be con- “ ducted as described, and the bleaching completed in separate “ vessels as ordinarily practised.”

[Printed, 5½*d.*]

A.D. 1853, January 29.—N° 223.

POTTER, HAROLD.—“ Improvements in the mode or method of “ producing a certain colour or colours on woven or textile fabrics “ and yarns, and in the machinery or apparatus connected therein.” This invention relates “ particularly to the process of what is tech- “ nically called Turkey red dyeing” (but is not confined to the dyeing of this colour, or to the use of madder); “ I pad or satu- “ rate the fabric or yarn with a salt of manganese, and then “ saturate it with oil in an exhausted receiver” after the following manner:—“ Firstly, after padding or saturating as afore- “ said, I saturate the fabric or yarn with oil by putting it in a “ pan and pouring oil upon it; then, by means of an air pump, “ or by steam introduced below in a false bottom, I drive out the “ air, and condense the steam by a jet of cold water, and thus “ form by either means a partial vacuum below, and the oil by the “ pressure of the air above is forced through the fabric or yarn, “ and saturates every fibre thereof.” “ Secondly, I then, by the “ same means as before described, pass through the mass a solution “ of potash very much diluted, which has the effect of oxidising “ the salt of manganese, and so oxidising the oil partially. “ Thirdly, I pass hot air through the mass by means of an air “ pump placed at each end of the pan (the said pan being so con- “ structed as to allow of this arrangement), and by creating above

and below alternately a partial vacuum hot air will be forced
" through the entire mass till the oil is oxidised by a heat not
" exceeding three hundred degrees Fahrenheit. Fourthly, I clear
" off the superfluous oil by a wash called ash-lee, made of either
" soda ash or pot ash, passing it through the fabric or yarn, as
" already described, by means of the two air pumps. After this
" I saturate the fabric or yarn with a liquor composed of an ace-
" tate of alumnia, and I clean it afterwards by means of phosphate
" or other suitable agent, using the two alternate air pumps as
" before. I then dye the fabric or yarn by passing madder liquor
" through it by means of the said alternating air pumps, which
" process I continue until it is properly dyed. I then boil the mass
" in crystal of tin and soap, and afterwards in soap alone till the
" Turkey red dye is completed, using the two air pumps as before
" described."

[Printed, 2½*d.*]

A.D. 1853, February 1.—N° 276.

NEWTON, Alfred Vincent.—(A communication.)—" Im-
" provements in block printing machinery." " The Patentee
" claims, first, holding the printing block in contact with the paper
" or stuff to be printed during a quarter revolution, more or less,
" of the cam shaft, while the necessary pressure is applied to transfer
" the colour to the material, without interrupting the continuity or
" velocity of the other movements of the machine, by means of the
" devices made use of for that purpose, or for any others calculated
" to produce the same result." " Second, the cam E, constructed
" and operating as described for the purpose of prolonging the
" pressure of the block upon the paper, in the manner and for the
" purposes set forth." " The cam E, for about a quadrant, is
" an arc of a circle, and as it revolves, the pin resting upon this
" periphery remains stationery. The pin, and with it the stan-
" dards and platen then descend," and during the time that the
pin is passing through the succeeding arc " the platen is in its
" lowest position, and the block rests upon the printing table."
" An enlargement upon the cam, which bears upon the upper
" surface of the pins, and presses the block firmly upon the paper,
" in a manner similar to that practised in the hand method."
" Third, the vertically revolving sieves, in combination with the

" carriage, and the color rollers, constructed and operating in " manner substantially as described." " Fourth, the combination " of elements in which the intermittent traversing motion is " communicated to the carriage and color rollers, viz. the segment " rack, and the rods " as described.

" Fifth, the device employed for feeding the paper or stuff to " be printed, and by which the register of the pattern is obtained." The feeding is effected by rollers, one of which moves quicker than the other, thereby producing a constant drag upon the paper; and the register is effected also by rollers. An intermittent feed motion is effected by the action of a ratchet wheel.

[Printed, 7½*d*.]

A.D. 1853, February 5.—N° 316.

PROSSER, Richard.—" Improvements in the construction of " printing rollers used in machines for printing calicoes and " other substances." " This invention consists in the employ- " ment of a hoop or cylinder of iron or other metal, conical " inside and outside, interposed between the copper (or other " metal) printing cylinder (on which the pattern to be printed is " engraved) and the ordinary wrought iron conical printing " mandril, so as to form one combined printing roller, to be used " in machines for printing calicoes and other substances." The conical " hoop or cylinder " may be made elastic by being cut lengthways with a narrow slit, so that, in forcing in the mandril, it will be made to expand and thereby grasp the inner surface of the copper roller. The copper roller " may be made very thin, " say one-tenth of an inch, and provision is made by means of " keys or feathers " to prevent the mandril, hoop, and roller from turning round on each other.

[Printed, 8½*d*.]

A.D. 1853, February 10.—N° 355.

FULTON, William.—" Improvements in the treatment, cleans- " ing, or finishing of textile fabrics." This invention " relates more essentially to the treatment of woven goods by what is " known as the 'sulphuring' process for bleaching or finishing." " Instead of depositing the fabrics in a sulphuring chamber, " the sulphur is applied without the introduction of the goods " therein at all. The fabric to be treated is on a beam at one

" end of the chamber, and it is carried from this beam over " suitable guides and passed over the sides and top of the " chamber in contact with an endless web of some thick material " as hair, cloth, or felt. This thick web is constantly traversed " through the chamber, over suitable guides, and so gets saturated " with the sulphurous vapor. The chamber has two narrow " slits in it, one on each side near the bottom, and the thick web " passes up out of the chamber by one aperture, and thence proceeding along outside over a reel, it enters again the chamber " by the other passage." The fabric thus receives from the endless web as much sulphurous acid as is required. This contrivance is also suitable for " steaming or damping goods." Goods may also be sulphured by hanging them on a frame, " such " frame being run in and out [of the sulphuring chamber] as " may be necessary on a railway, two frames being in use, so " that one may be filling whilst the other is in the sulphur chamber, " and the frames are so contrived with a solid side that they will fill " up the side of the chamber when placed therein; or if the goods " are on rolls, they may be drawn directly off from the interior " of the chamber through a slit, and wound upon a beam in " readiness for the next process of treatment."

[Printed, 11½*d.*]

A.D. 1853, February 16.—N° 410.

NEWTON, ALFRED VINCENT.—(A communication.)—(Provisional Protection only.) " Improvements in the manufacture " of printing surfaces." " This invention relates, firstly, to the " treating of gutta percha, and of india-rubber, and of the two " gums combined with metals or the oxides of metals reduced to a " granulated state. And, secondly, to the mode of manufacturing " such compounds into moulds or matrixes and into stereotype plates or printing surfaces." " The metals or oxides of " the metals which have been used with advantage are peroxide " of iron, peroxide of antimony, or the two combined; also copper " oxides and the oxides of lead and zinc; also plumbago or the " flowers of the earths (as clays, ochres, and the crude metallic " ores of zinc, tin, lead, copper, iron, antimomy, &c.), the flowers " of the metals proper, and of earthen and glass ware." Such substances are ground in with the gum by means of heated cylinders. The composition so formed may be used for various purposes, such as making moulds, printing surfaces, and etching plates.

[Printed, 2½*d.*]

A.D. 1853, February 24.—N° 469.

DE LA RUE, Thomas.—"Improvements in producing orna-" "mental surfaces to paper and other substances." "This in-" "vention consists in the producing of [iridescent] films on paper" "and other substances by dipping them into, or spreading on" "them, a solution in ether, or other solvents, of gun cotton, or" "other similar products, which are called by chemists xyloidine" "and result from the action of nitric or sulpho-nitric acid on" "vegetable matters, the solutions being used either with or with-" out resinous varnishes."

[Printed 3½*d.*]

A.D. 1853, February 28.—N° 500.

ROBERTS, Martyn John.—"Improvements in the manufac-" "ture of mordants or dyeing materials, which are in part appli-" "cable to the manufacture of a polishing powder." "I take" "antimony, and render it soluble in any form; precipitate it or" "its oxide upon the fabric to be dyed, as is usual with mordants." "I sometimes also use it in solution as a "brightener" of" "colours." "And I manufacture my polishing powder, for glass" "and other hard surfaces, from antimony in the form of oxide," "which may be calcined to the requisite hardness." "I also im-" "prove the manufacture of tin or antimony mordants, or dyeing" "materials, when in the form of stannates, or antimoniates, or" "antimoniites, and when rendered soluble by soda, in the follow-" "ing manner: I mix the metal or its oxide with chloride of" "sodium (common salt) and lime, alumina, or other body which" "will tend to extract the chlorine from the soda, and I heat them" "together, applying vapour or other combination of hydrogen" "and oxygen to the mixture when so heated."

[Printed, 2½*d.*]

A.D. 1853, March 8.—N° 590.

COLQUHOUN, John.—(Provisional Protection only.) "Im-" "provements in bleaching, or sulphuring silk, woollen, cotton,

" and other woven fabrics and yarns." "The sulphurous acid " gas, chlorine, or other bleaching agent, is contained in a rectan- " gular chamber, one side of which is left open for the introduc- " tion of one, two, or more frames of such a size as altogether " to occupy the whole chamber. These frames are carried upon " wheels, and traversed in and out of the chamber on rails or slides " provided for that purpose, and they are each formed with two " ends, in such a manner as to close the opening into the chamber " both when they are entirely within it, and also when they " are drawn out. The frames are fitted with spars, or rollers, on " which the cloth to be operated upon is hung." The "bleaching " chamber" may be "roofed with plate glass" in preference.

[Printed, 2½*d*.]

A.D. 1853, March 10.—N° 607.

WALMSLEY, James.—"Improved machinery and arrange- " ments for block printing." These improvements consist "in " the machinery for block printing, by means of blocks arranged " so as to traverse across the fabric and imprint two or more " impressions side by side; together with the arrangements for " regulating the traversing motion of the blocks, and alternating " motion of the furnishing and colour rollers; and also the " arrangements for keeping the fabric extended during its passage " through the machine." "Each pair of blocks is connected with " suitable apparatus enabling it to traverse across the whole " width of the table, and print at any part of the table. These " blocks move from opposite sides of the table alternately, one " advancing as the other is receding, the color being supplied to " the under side of the block during its motion over a color roller " at the side of the table; thus two or more impressions are " printed on the fabric before moving it forward lengthways of " the table to receive fresh impressions from the same pair of " blocks. The number of impressions required to print across the " fabric will depend on the width of the fabric and the sizes of " the blocks employed." "The blocks are pressed down upon the " fabric by means of tappets or cams affixed to shafts running " lengthways of the table."

"To secure the uniformity of width essential for a proper " correspondence of impressions, I cause the fabric on either side

" to be firmly grasped or secured between nippers formed of two " pieces of wood or metal attached to the chain, whereby the " fabric (such as druggets and felt carpeting) is kept of the proper " width and distention during the process of printing in its " progress through the machine."

[Printed, 11½d.]

A.D. 1853, March 14.—N° 638.

JOHNSON, John Henry.—(Provisional Protection only.) "Im- " provements in dyeing." The essential feature of this invention " is based on the use of pure nitrate of iron, and partly on acetate " and subacetate of lead. In dyeing black, violet, and other colours, " the bath is made up of subacetate of lead and litharge water, and " pyroligneous acid. The pure nitrate of iron is prepared with nitric " acid and new bars of iron of a certain thickness, in order that " the operation may progress slowly. The silk, if to be dyed a " darker or lighter shade of black, is first boiled and then washed, " and afterwards placed in a bath of nitrate of iron. The treated " fabric is then exposed to the air, and is then washed in flowing " water. The material is then again immersed in a bath of " nitrate of iron, and the processes already described are repeated " to the extent found necessary. A bath is then prepared, for " example, of extract of logwood and wood quercitron, or 'bois " 'Jaune,' and to this mixture a solution of sulphate of copper is " added." The silk is dyed in this, washed, and plunged in a bath of tepid water "in which a little oil decomposed by carbonate " of soda has been poured." "The process is finally completed by " plunging the silk into a boiler containing the subacetate of lead, " this treatment producing the augmentation of weight." The black shade will be darkened and rendered "pure," "brilliant" and "*solid*" by drying it at a low temperature and exposing it to a "current of sulphuric acid."

A violet may be obtained from the "alga tinctoria" or *white moss* and a "golden shade" of great solidity from "wood."

[Printed, 2½d.]

A.D. 1853, March 21.—N° 693.

TAYLOR, Isaac.—"Improvements in machinery for printing " woven and other fabrics." These improvements consist, firstly in the substitution of moveable inclined planes, for the levers usually employed to give pressure to the printing rollers, whereby thin rollers may be advantageously employed. Secondly, in transmitting the motion through the bowl to the printing roller, instead of through the roller to the bowl. "I bring the engraved " roller, with its own weight and that of the carriage connected " with it, to descend freely upon the boll on a surface or incline " more or less vertical, and at an elevation greater or less above " the level of the horizontal diameter of the boll, so as shall " give it an augmenting lateral pressure inversely as that elevation is less; this being the elementary principle of the machine. " In the actual construction of it, so as to secure a mechanical " equilibrium throughout its several parts while in action, the " engraved roller forms one of three cylinders, which are so lodged " between opposed jambs as that the axes of the three shall be " always in line, and this line forming an angle more or less acute " with the horizontal diameter of the middle cylinder, namely, " the boll; the exterior cylinder of this set being the engraved " roller, and the middle cylinder the boll. The exterior cylinder, " on the other hand, is a support roller, or rather a pair of rollers, " which sustain the boll in a direction opposed to the pressure or " nip which it receives from the engraved roller. The boll occupying a fixed position in brackets or pedestals, the support " rollers admit of an adjustment so as to bring them always into " their due linear direction, as above stated, while the engraved " roller, working in a carriage, is left to descend upon the boll by " moving freely upon the faces or edges of a pair of jambs, " inclined more or less from the vertical; or, if requisite, these " surfaces may be absolutely perpendicular, so as to throw the " roller with its entire weight upon the boll. It is evident that as " to the inclined planes or surfaces upon which the engraved roller " and carriage take a bearing, that these might, as related to the " boll, be brought into other positions than those above mentioned, so as to effect a nip yet with less advantage."

[Printed, 1*s*. 2½*d*.]

A.D. 1853, March 21.—N° 696.

STATHER, John.—"Improvements in printing." "This invention consists, firstly, of a mode or modes of producing " blocks, moulds, or forms for that description of printing com-

" monly known as block or surface printing, (that is to say,)
" blocks, moulds, or forms, in which the letters, figures, or devices,
" to be represented are left plain (without colour), the surrounding
" portions being those which are printed,) by taking impressions
" in a material (gutta percha is best adapted) capable of
" being formed or moulded in the requisite manner from corresponding
" but inverted or reversed letters, figures, or devices,
" which are raised or in relief. Secondly, in a mode or modes of
" printing letters, figures, and devices upon the surfaces of papers,
" cloths, or other articles by means of a flat plate, on, to or upon
" the surface of which the intended letters, figures, or devices are
" first printed or impressed in an inverted or reversed manner,
" and in one or several colours, in such manner that the said flat
" plate shall, by pressure against the surface of the paper, cloth,
" or other material intended to be printed, transfer to or print
" upon the material the impression or impressions it has received."
This "transferring plate" may be made of "copper," "card"
" paper" "gutta percha," or "glue and treacle." The pattern of
several colors " is printed first on the plate, and then transferred
" from it to the substance to be printed by pressure in a suitable
" printing machine. Thirdly, the mode or modes of printing
" devices, &c. upon the surface of cloth, &c. by means of a roller
" or cylinder on to or upon the surface of which the said devices,
" &c. are first printed or impressed in an inverted or reversed
" manner, and in one or several colours, by means of a small
" roller or several small rollers (according to the number of colors
" to be used) working in conjunction with the larger roller, in
" such manner that the larger roller shall receive upon its surface
" from the smaller roller or rollers impressions producing or representing
" the intended devices, &c., and shall transfer or print
" such impressions from the surface of the larger roller to or upon
" the surface of the cloth, &c. to be printed, by causing the same
" to be pressed against the surface of such larger roller by the
" action of another roller working in conjunction with it." The
mordant or colour employed is transferred by furnishing rollers from the colour-trough to the surface of the "device cylinders," from which it is transferred to the "transferring cylinder," whence it is applied to the surface of the fabric to be printed. The device roller, of which there may be several working in unison, contains on its surface the pattern or part of it desired to be printed.

Suitable machinery to drive the rollers and to insure accuracy of fitting in of the colours is laid down in the drawings.

[Printed, 11½*d.*]

A.D. 1853, March 28.—N° 737.

PERRY, Thomas James.—"Improvements in printing." The Patentee claims as his invention "the constructing of printing " types with angular or other elevations and depressions on their " opposite sides, so that the said types, when set up, shall inter- " lock by the said elevations engaging in the said depressions." The types being cast with an "angular depression one side," and " a corresponding angular elevation on the opposite side," are fitted and secured by screws in trays, the sides of which have corresponding depressions and elevations. The trays containing the columns of types are attached to the printing cylinders, by means of a shoulder at one end and a ring at the other. This " invention is applicable to the printing of calico and fabrics " generally, as well as to the printing of paper."

[Printed, 7½*d.*]

A.D. 1853, March 9.—N° 740.

DERING, George Edward.—"Improvements in preserving or " preventing decomposition in vegetable and animal substances " and matters." The Patentee claims "the employment for " the purposes stated, the solutions and matters resulting " from the working of galvanic batteries, whether in the con- " dition in which they came from the battery, or subjected to " some other treatment." "The sulphate of zinc," "chloride of " zinc," "sulphuric acid, or any suitable sulphate," or "hydro- " chloric acid, or any suitable chloride or muriate," are preferred. These improvements are "applicable to preserving or preventing " decay in timber, and most vegetable and animal matters, and " the same treatment, in some cases, also answers the secondary " purpose of improving or altering the quality of fabrics and " substances subjected to it, of preparing them for some after " treatment, as in dyeing processes, and of rendering them unin- " flammable. And my improvements also relate to disinfecting " and deodorizing fecal and other matters, in order to prevent the

" emission of effluvia from them, and to render them serviceable " as manure."

[Printed, 3½*d.*]

A.D. 1853, March 29.—N° 744.

SMITH, Luke, and SMITH, Mathew.—" Improvements in " machinery for weaving and printing." These improvements relate chiefly to "weaving;" and also "to improvements in con" structing blocks for block printing." "The objects of our " present improvements is to facilitate the changing of the pat" tern without cancelling the entire block. For this purpose we " make grooves over the whole surface of the block. Pieces are " fitted into the grooves, which are slightly dovetailed to prevent " them falling out, and are raised above the surface of the block, " to take the colour to be impressed upon the yarns or other " material to be printed." When the pattern " requires changing, " it is only necessary to slide the pieces into different positions " in the grooves."

[Printed, 11½*d.*]

A.D. 1853, March 30.—N° 764.

DALGLISH, Robert.—(Provisional Protection only.) " Im" provements in dyeing." " This improvement consists in expos" ing the substance or substances from which colouring matter or " matters are obtained to the repeated action of the water used " in the process of dyeing, without bringing the bulk of the " insoluble matter in contact with the material to be dyed."

"The water of the dye bath is alternately employed to extract " colouring matter, and give it up."

[Printed, 2½*d.*]

A.D. 1853, March 30.—N° 768.

WORRALL, James, Junior.—" Improvements in the method of " preparing, treating, and finishing certain textile fabrics, called " cords, 'thicksets', 'velveteens,' and 'beaverteens.'" These improvements " consist, principally, in a certain novel and peculiar " arrangement of some of the several processes hitherto employed, " together with the introduction of certain novel processes and " apparatus not hitherto employed, by means of which I am

" enabled to gelatine, stiffen, and dye the cloth previously to the " operations of cutting, raising, backing, or shearing; and, by " an improved mode of preparing the goods, the process of flour " and lime stiffening, and also that of scouring and cleansing the " goods to remove the same, are entirely dispensed with, the principles of tanning are more effectually introduced, and the cloth " is thereby rendered much more impervious to wet and moisture, " having a 'leather finish,' or the properties of leather combined " with the texture of the cloth and the napped surface." The specification gives a full description of the various operations which are employed in preparing, treating, and finishing such or similar fabrics, in lieu of those processes now practised, and their relative arrangement or order. An important feature in this invention consists in dyeing the fabric previous to the process of cutting or raising the pile or nap; and also "in combining the gelatine " with the tanning properties of the dyes employed."

The apparatus used "to pad on or pass the cloth through a " mordant composed of gelatine, with a solution of iron, copper, " tin, or other suitable metal or mineral," may consist of a vessel for holding the gelatine and mordant placed so high as to afford the necessary pressure. A pipe proceeds from the bottom of this cistern to the bottom of a keir or vessel capable of being closed, placed underneath. Through this pipe the keir is filled with the gelatine mordant. In the keir are placed two "hollow or open " cylindrical frames upon which the cloth to be operated upon is " rolled, and may be wound backwards and forwards as required, " by means of the winch handles." Another pipe leads from the upper part of the keir to the cistern to complete the circulation; " the keirs are supplied with steam (high pressure), by means of a " steam pipe."

[Printed, 6½*d*.]

A.D. 1853, April 5.—N° 817.

PIDDING, William.—"Improvements in the manufacture of " woven, textile, or other fabrics, and in the machinery or apparatus connected therewith." "I take silk or other material of " close texture (including paper), saturate the material with gelatine or gum, stretch it on a frame, and pass through the silk or " other material thus prepared points of wire or needles arranged " and fixed in an instrument, in accordance with the design pre-

" viously made on the fabric, or in equi-distant places. I produce
" a fabric by means of inserting studs or other forms of material
" described in a former Specification of Patent 598, dated ninth
" March one thousand eight hundred and fifty-three [or by
" means of spun glass, gelatinized or gummed, and allowed to
" dry, and then cut into studs by means of numerous knives."

[Printed, 2½*d.*]

A.D. 1853, April 6.—N° 823.

GATTY, Frederick Albert.—(Provisional Protection only.)

"Improvements in printing or producing colours on textile " fabrics." "My improvements consist in the preparation of a " mordant for fixing and oxidising steam colours. This mordant " is composed of chlorate and hydro-chlorate of alumina, pre- " pared by decomposing alum or sulphate of alumina, by the " mixed salts of chlorate of lime and chloride of calcium. By " the use of this mordant I dispense with the chlorate of potash, " generally employed for fixing and oxidising steam colours."

[Printed, 2½*d.*]

A.D. 1853, April 9.—N° 857.

TAYLOR, Herbert.—(A communication.)—"Improvements in " ornamenting surfaces or fabrics, applicable to various useful pur- " poses, such as for covers of furniture, imitation tapestry, carpets, " or hangings." This discovery consists in "the painting upon " cloth previously prepared with a mordant, as herein described, " that will combine chemically with the colors laid on one over " another, and blended as described, by which I give great rich- " ness to the figures, whilst the tint of each is carefully preserved. " I claim, also, developing and fixing permanently the colors by " steam, and restoring the cloth to its natural pliable state, by " washing out the gum, and excess of coloring matter, as herein " described." The "felt or woven woollen goods" to be painted, being bleached in the usual way, are steeped, firstly, for three-quarters of an hour in a solution at 30° Beaum. composed of 18 pounds hydrochloric acid, 9 pounds sulphuric acid, and 2½ pounds of block tin, "the whole being warmed on a sand bath, " during which chlorine gas is to be introduced, by a pipe or " otherwise, to saturate the solution; and, secondly, for ten

" minutes in a solution of chloride of lime at 2½° B." When the fabric thus prepared has been washed and dried, the painting may be effected by lithographing the outline, and then painting in the details with "vegetable," "mineral," "or animal colours," thickened with the "gums arabic or senegal" which have been well " bleached or purified," taking care to commence with the lighter shades, and to finish with the darker ones. The implements used for this purpose may be a "gold or common quill, " style, brush, small roll of felt, or other cloth;" and sometimes small pieces of "wood, ivory, or glass."

The painted fabric is afterwards damped, steamed open in a chamber, for the necessary time, wherein it may be caused to move by means of machinery; then aged for twenty-four hours, and washed off in clean water, the gentle action of a running stream being preferred; it is then dried carefully, brushed lightly with the grain of the cloth, and ironed with a moderately hot iron, when the colours will be "fully developed and permanently " fixed or set."

[Printed, 4½*d*.]

A.D. 1853, April 18.—N° 933.

McNAUGHTON, William.—"Improvements in printing yarns " or worsteads for weaving carpets, also in printing carpets, " woollen, silk, cotton, and other textile fabrics or fibrous substances."

These improvements consist "in printing of yarns or worsteads " for weaving carpets, also in printing carpets, woollen, silk, " cotton, and other textile fabrics or fibrous substances either on " one side, or on both sides thereof simultaneously" by the means herein described. The printing cylinders herein employed may be arranged in pairs either vertically or horizontally, and there may be several pairs of such rollers. Their surfaces are supplied with colour by means of furnishing rollers each working in its colour box. The printing rollers and colour furnishing rollers are driven simultaneously by suitable intermediate gearing. The fabric or yarn to be printed is caused to pass continuously and successively between the pairs of printing rollers; but in the case of yarns, wire cloth should be wound on with the yarns; and they may be shot with weft about every 12 or 14 inches. The printing surfaces of the rollers may be made of wood, ductile metal, or stereotype casts inlaid with felt or other suitable absorbent material. The above machine may be used for printing on one or both sides of the fabric or yarns. After printing, the fabric, &c. is to be stained, washed, and dried.

[Printed, 1*s.* 3½*d.*]

A.D. 1853, April 25.—N° 992.

TILLIE, WILLIAM, and **HENDERSON**, JOHN.—"Improve-
" ments in printing shirting fabrics." These improvements consist in "the general arrangements and printing of shirting
" fabrics;" and, also, in "the system or mode of printing shirting
" fabrics, wherein the rest of the shirt, with the exception of the
" sleeves, is printed at the same time and by the same roller as
" the whole of the trimmings." To effect this "the roller carry-
" ing the whole of the required design is (engraved) arranged to
" print the piece as it were in the length of the shirt. On one end
" of the roller are the patterns for several minor trimmings (such
" as the fronts, collars, wristbands, &c.), which are thus printed
" along one edge of the piece, whilst the main body of the roller
" carries the body and front design." The fabric for making the arms of the shirt is separate and narrower, and is printed by that part only of the roller that carries the "body pattern."

[Printed, 6½*d.*]

A.D. 1853, April 27.—N° 1018.

PALIN, JOSEPH, and **SIEVER**, ROBERT WILLIAM.—(Provisional Protection only.) "Improvements in distillation, and in an
" apparatus connected therewith, which apparatus is also applicable
" to other purposes in which substances are to be treated by the
" assistance of a vacuum." The object of this invention may be effected by placing a spirituous liquor, or other substance to be treated in vacuo, in a "vessel capable of being heated and connected
" to an ordinary worm, terminating in a closed chamber for receiv-
" ing the product. Steam is admitted to the separate vessel con-
" stituting the second part of our improvements, and allowed to
" condense, by which a partial vacuum will be formed. If, now,
" the communication be opened with the worm, and conse-
" quently with the vessel containing the material to be treated,
" the air will rush therefrom to supply the vacuum, and will

" necessarily become rarified, and by repeating this operation " (if desired) a vacuum, or nearly so, may be obtained. In like " manner, we obtain a vacuum for assisting the operations of " evaporation, of obtaining various solutions or extracts, impregnating substances with other matters, facilitating the process of " filtration, or for other purposes in which substances are to " be treated by the assistance of a vacuum."

[Printed, 2½*d*.]

A.D. 1853, April 28.—Nº 1031.

BERRY, James, and BOOTH, Thomas.—" Improvements in " machinery or apparatus for printing or staining woven fabrics " and paper." This invention consists in "the use of sieve " rollers made of elastic substances or materials, working in " contact with the printing rollers." The sieve rollers may be made of "india-rubber, gutta percha, or a composition of any " materials that will form a yielding surface." The surface of these rollers transmit the colour directly to the printing surface of the roller, in surface roller printing in lieu of the endless sieve cloth.

[Printed, 6½*d*.]

A.D. 1853, April 29.—Nº 1045.

MATHER, Colin.—" Improvements in apparatus used in " bleaching." " Heretofore the liquor used for bleaching has " been forced from the space below the false bottom up a pipe, " which passes through the cloth, and falls into the vessel containing the cloth; the liquor is mostly forced up this pipe by " the pressure of steam, but this arrangement does not act till " the liquor boils; now the object of this invention is to cause " the liquor to flow up the 'puffer pipe' as soon as the steam is " turned on; and I accomplish this by having a jet or jets of " steam passing up the 'puffer pipe,' by which the liquor flowing after the steam rises to the desired level, and falls over into " the vessel containing the cloth."

[Printed, 4½*d*.]

A.D. 1853, May 2.—Nº 1056.

GREENWOOD, James.—" An improvement in fixing mordants " on fabrics." This improvement consists in "the application of

" chloride of lime (known in commerce as 'bleaching powder'), or " chlorine in combination with other bases than lime, for the " purpose of fixing mordants on fabrics." "The goods printed " with mordants, or otherwise prepared (as is well understood by " printers)" may be passed through a clear solution of chloride of lime of specific gravity 1·035, and at upwards of 120° F., to which has been added pulverized carbonate of lime, or carbonates of soda or potash, or carbonate of ammonia or muriate of ammonia. In place of chloride of lime, other chlorides may be used, such as chloride of soda or potash, &c. The goods are then washed and put into the dye bath.

[Printed, 2½*d*.]

A.D. 1853, May 11.—N° 1164.

BRADBURY, WILLIAM, and EVANS, FREDERICK MULLETT.—(A communication.)—" Improvements in taking impressions and " producing printing surfaces." "This invention consists of " placing plants and other vegetable matters, insects, and other " substances, between a surface of steel and a surface of polished " lead, and by pressure obtaining an impression on the lead, and " from such impression obtaining an electrotype surface suitable " for printing." Rollers are employed for giving pressure to the plates between which the object is placed from which the impression is desired to be taken. An electrotype plate of copper is obtained from the impressed lead by the usual process, and from it a second plate, which is the one used as a printing surface.

[Printed, 2½*d*.]

A.D. 1853, May 14.—N° 1193.

HIGGIN, JAMES.—" Improvements in printing or dyeing woven " or textile fabrics, and in the manufacturing of certain substances " to be used in the arts or processes of dyeing and printing." This invention consists in " the use of a silicate of an alkaline " earth diffused in water, in place of cow dung in the dunging " operation, as herein described." " Silicate of lime " is used in " preference, " which, being formed by precipitation of the silica in " combination with the alkaline earth, is not open to the objection " of being a solution capable of dissolving the alumina of the red " mordants." In practice the following method may be employed:

—Into the dung cistern, containing 600 gallons of water at the usual temperature, is put one gallon of muriate of lime, at 50° T., and one gallon of silicate of soda, also at 50° T. "The goods are "passed through this mixture in the usual manner, and at the "usual heats, and afterwards treated just as if they had been "dunged with cow dung." The silicate of soda is formed "by "heating in a reverberatory furnace a mixture of sand and soda "ash or carbonate of soda, in such proportions that the resulting "glassy (and soluble) substance is as nearly as possible a combination of two equivalents of silica and one of soda."

[Printed, 3½*d.*]

A.D. 1853, May 23.—N° 1267.

BELLFORD, Auguste Edouard Loradoux.—(A communication.)—"An improved method of treating flax and hemp, "whereby they are brought to such a state that they may be "carded, spun, and woven by machinery such as is now employed in the manufacture of cotton and wool into yarn and "cloth." The "unrotted flax" is to be cut into proper lengths, and subjected to the action of "steam" for eight or ten hours in a steam-tight vessel. After this it is "broken on a cotton "lapping machine, when it becomes fit for the splitting or cottonizing process." "This process is conducted as follows:" —In a suitable vessel "I make up a solution of about one "pound of alum or sulphate of alumina [or common salt, "Epsom salt, glauber salt, nitre, sal-ammonia, or their equivalents, or borax, chloride of soda, &c.], for every one hundred "pounds of flax to be treated, in as much water as will saturate "and cover up the said flax in the said vessel. The flax is allowed "to remain in this solution from five to twenty minutes, during "which period the said solution so acts upon the flax as to split "it into very fine or cottony fibres. It also preserves its strength "and toughness. After this the split flax may be bleached in the "ordinary way;" or the clear liquor from about "five pounds of "chloride of lime" may be poured into the "vessel containing the "flax in the aluminous, &c., solution," and the flax be allowed to remain in it for "about from ten to twenty minutes, at the end of "which time the flax is found to be bleached into a beautiful "white;" after which it only requires to be well washed and dried.

[Printed, 3½*d.*[

A.D. 1853, May 26.—N° 1302.

ROTH, JULIUS AUGUSTUS.—(Partly a communication.)—"Improvements in the mode of and machinery for treating the fibres "of flax, hemp, china grass, and other analogous substances, "preparatory to spinning." In applying the improved apparatus, the Patentee operates "upon the flax either in the state "in which it generally comes to the manufacturer to be spun, "or in the condition of unretted fibre from which the woody "parts have been mechanically removed." The apparatus employed consists of "combs," or what may be termed trays or open sieves, on which the flax is placed or suspended openly, and is retained there by a bar which presses on the flax. These "combs" supporting the flax are placed in a frame, and made secure to it by suitable means. The frame is suspended by a cord, so that it can be lowered or raised at pleasure. The Patentee then immerses the frame with its contents of flax into seven vats in succession, containing the following liquids or preparations, of suitable strengths and temperatures:—"The first vat "contains an alkaline solution, such as caustic soda." "The "second vat contains clean water." "The third vat contains "dilute sulphuric acid." "The fourth vat contains chloride of "lime in solution." "The fifth vat contains dilute sulphuric "acid." "The sixth vat contains a solution of what I term "'anti-chlorine' [sulphite of soda]." "And the seventh vat "contains warm water for rinsing the flax." During each immersion the frame is "kept moving up and down in the vat, in order "that the flax may be brought into more intimate contact with "the solution in the vat." Connected with each of these vats is a series of small squeezing rollers, which are caused to act against the flax on the combs as the frame is being withdrawn from the vat, and thereby press the liquor out of the flax and back into the vat. The flax may then be dried by placing the "combs" containing the flax on a rotating or centrifugal apparatus, the centre shaft of which being hollow and perforated with holes, admits of a current of hot air to pass over the surface and through the flax; the action of the hot air being assisted by vanes placed on the shaft.

[Printed, 10½*d*.]

A.D. 1853, May 28.—Nº 1317.

FRANCILLON, François.—" Improvements in dyeing and " printing silk, wool, and other animal fibres." These improvements consist in " dyeing and printing animal fibres, such as " wool, silk, hair, feathers, or skins, by means of chromic acid or " its combinations, which may be reduced and converted into a " chromic oxide, and fixed by any convenient chemical means." The process may be performed by applying a saturated solution of bichromate of potash to the whole or part of the surface of the fabric, and then exposing it in a damp state to the action of " sul- " phurous acid, either in a gaseous form or in solution." The result will be the deposition of the green oxide of chronium upon the fabric. Other agents may be employed for the reduction of the chromic acid to the state of green oxide, such as " chloride of " tin, the hydro-acids, phosphorous acid, several oxy-acids of " sulphur, either free or in the form of a salt." The addition of arsenious or arsenic acid alters the shade of the oxide from a " greyish green to a decided green." " The chromic acid (oxide ?) " acts as a mordant as energetically as alumina and oxide of " iron," and will dye with madder, cochineal, and other matters ; or it may be precipitated along with the " coloring or astringent " matter."

[Printed, 3½*d.*]

A.D. 1853, May 30.—Nº 1330.

GREEN, William.—" Improvements in treating or preparing " yarns or threads." These improvements relate, first, to " certain " modes of applying color so as to produce a greater depth or " intensity thereof than is ordinarily obtained." This is effected by first " dyeing the yarn of a suitable color, in the usual way," and then dressing it with " size, dressing paste, japanners' gold size, " burnt oil, or other adhesive matter," and finally passing it into a " trough containing the dry color (such as carmine, ultramarine " blue, &c.), in the state of powder ;" suitable mechanical means being adopted for both purposes. " This mode of coloring threads " or yarns may be employed alone, and the dyeing process dis- " pensed with."

Secondly, " to producing glossy effects upon yarns or threads by " covering such yarns or threads over their entire surface with

“ metallic powder.” In this case the various “bronze powders” are substituted for carmine, &c., and it is preferred to use yarns dyed of a color to match.

“Thirdly, to coating yarns or threads with metallic solutions, “ pigments, or compositions.” This may be effected by adding the metallic powder to the dressing of “isinglass, size, varnish, “ Canada balsam, or other adhesive matter capable of holding the “ said powders in suspension,” and applying it to the yarn as before. An additional coating may be given to the yarn, “through “ the agency of electricity, in a similar manner to that employed “ for gilding or plating metallic vessels.”

“Fourthly, to certain modes of burnishing or brightening yarns “ or threads.” The yarns or threads coated as above may be burnished or brightened by means of “two polished surfaces of “ steel or agate, which are gently pressed against each other,” and at the same time moved backward and forward in a “direction at “ right angles to that of the thread,” which is made, at the same time, “to move in the direction of its length;” or bright agate or steel rollers may be used to burnish the yarn in its passage from one reel to another, and these rollers may be engraved with suitable patterns.

“Lastly, to producing figured or ornamental fabrics by printing “ or otherwise imparting a metallic line or pattern, or a line or “ pattern in dry powdered colors generally, upon yarns or threads.” “ To effect this part of my invention, the yarns or threads, after “ being dyed, are to be wound on rollers,” and then printed in the usual manner, with “adhesive matter,” to any desired pattern, to which is applied the “dry powdered colors, bronze, or other “ metallic powders.” In some cases the metallic powder may be combined with the adhesive matter. In some cases it may be found preferable to coat the threads with “leaf of metal,” in lieu of the fine metallic powder.

[Printed, 7½*d.*]

A.D. 1853, June 15.—N° 1444.

BURSTALL, GEORGE.—(Provisional Protection only.) “ Improvements in the bleaching of oils and fats, and in machinery “ and apparatus connected therewith.” This invention consists in “ the mode of exposing large surfaces of the oleaginous and fatty “ matter to be bleached to the action of air.” This may be effected by condensing steam and thereby producing a vacuum in a closed vessel placed at some height. The oil is drawn into this vessel and then allowed to fall into a receiver, through a cullender and in the form of a shower, from whence it descends through wire gauze into the original receptacle. This operation may be repeated as often as required.

[Printed, 4½*d.*]

A.D. 1853, June 17.—N° 1481.

PIDDINGTON, **John**.—(A communication.)—" Improvements " in obtaining infusions and decoctions, and in vessels or appa- " ratus employed therein." "This invention consists in causing " water or other liquid employed to continually pass through " or percolate the body or substance from which the infusion " or decoction is to be obtained, until the whole or as much " of the properties of such substances as may be required have " been extracted." Attached to the Specification are two drawings, one of which shows the mode of applying the above principle to making extracts of coffee; the other is of "an " apparatus for obtaining an infusion of coloring matter from " wood for dye purposes." It consists of a "boiler heated " by a furnace," over which is a "cylinder fitted with a " top;" "it contains a cylindrical case, with perforated top and " bottom, in which the wood reduced to small pieces or shavings " is placed. The boiler is filled with water, but the cylinder is " only partly filled in order to leave space for the steam which " may be generated." There is a "forked pipe leading from the " upper part of the boiler to the bottom of the case" containing the dyewood. "The water on being made hot rises through the " contents of the case, and returns into the boiler through other " two pipes, and this circulation will be maintained as long as " heat is applied to the boiler."

[Printed, 4½*d.*]

A.D. 1853, June 18.—N° 1492.

GILBEE, **William Armand**.—(A communication.)—(Provisional Protection only.) " A new mode of ornamenting stuffs " and paper." "The invention consists in cutting out designs " of different sorts of tissues, such as wool, silk, thread, cotton,"

" and paper, and applying the same, by means of an adhesive " composition consisting of gutta percha dissolved in a sand " bath and kept in a liquid state, either above other stuffs, or " paper, or underneath, in which latter case a part of the " material corresponding with the form of the design has to " be cut out so as to produce ornaments and new designs, super- " seding embroidery and serving for various purposes."

[Printed, 2½*d*.]

A.D. 1853, June 18.—N° 1493.

WORRALL, James, Junior.—" Improvements in machinery " or apparatus for washing, bleaching, and dyeing fustians, beaverteens, cantoons, satteens, twills, and other textile fabrics." These improvements " consist, first, in causing the pieces of cloth, " having been previously saturated or soaked in a cistern or " other receptacle containing water, bleaching liquor, or dyeing " liquor, to pass over and round a large solid mangle bowl or " cylinder, similar to those used in printing machines, against " which it is pressed by other or smaller bowls or cylinders forced " against and in contact with the said mangle bowl, and from " which it is separated or detached by means of guide or carrier " rollers placed intermediate with the pressing bowls, by which " means the water, bleaching liquor, or dye is effectually pressed " into the cloth. Secondly, in forcing jets of water, bleaching " liquor, or dye, at a higher pressure on and into the cloth at the " point where it becomes separated and detached by the inter- " mediate guide rollers from the 'nip' or point of contact of the " mangle bowl, and the smaller bowls, during its progress through " the machine."

[Printed, 6½*d*.]

A.D. 1853, June 20.—N° 1500.

PAUL, John.—" Colouring paper on the surface." This invention may be applied also to colouring " woollen, cotton, and " other fabrics on the surface, in short as also in long lengths." " There will be a trough containing the color, with adaptation for " heating the same; as also a tap for bringing the color on to the " paper and other fabrics, and regulating the supply on the same, " with an agitator traversing along its inner surface; the color

" will then be spread by means of one or more brushes, having " a compound rotary and traverse motion by right and left hand " cut screw, rack, and pinion; the paper and other fabrics will " then be finished and smoothed off by means of two or more " brushes, having a compound eccentric and traverse motion from " crank, and the aforesaid screw and rotary motion from centre on " crank; the table is carried forward by a movement attached to " the framework with an endless blanket, and passes on, colored " and cut into lengths as required. This machine can be worked " by manual labor, or by power, and will have as near as possible " the motion of the hand."

[Printed, 2½*d*.]

A.D. 1853, June 24.—N° 1546.

VALLS, Leon.—(A communication.)—(Provisional Protection only). " Improvements in the production of printing surfaces." The object of this invention is to produce printing surfaces by means of " gutta-percha, either alone or in combination " with caoutchouc or other ingredients," to be used for the " purposes for which wooden or metal blocks are usually em- " ployed." The gutta percha and other ingredients may be melted and cast in a suitable mould; or, when in the shape of a sheet, may be softened by heat and pressed on and " into all the inter- " stices of the mould or matrix."

[Printed, 2½*d*.]

A.D. 1853, June 25.—N° 1549.

LIGHTFOOT, John Emanuel.—" An improvement in the " manufacture of certain colouring matter to be used in dyeing " and printing." " This invention consists in making garancine " from spent madder liquor and sulphuric acid or other acid, both " with and without the grains of spent madder, by means of the " heat it contains on leaving the madder dye bath, without any " additional heat, and also (for this purpose) in the use of wooden " vessels with close covers to prevent evaporation. It further " consists in the use of arsenious or arsenic acid, for the purpose " of preserving the garancine fit for use in a moist state for a " considerable period." This may be effected by causing the hot liquor from the dyebecks to run directly into a large wooden vessel, closely covered with a lid; or the "grains" of the spent madder may be separated by filtration, and the liquor alone allowed to pass into the wooden cistern. To every "1,000 gallons" of such hot liquors may be added in preference "one gallon of "sulphuric acid, of sp. gr. 1·850, previously diluted with one gal- "lon of cold water." These are all well stirred, and then allowed to remain for at "least 12 hours." The deposit is then withdrawn, filtered, and washed and treated as in the manufacture of garancine. "To prevent the moist colouring matter or garancine "from becoming mouldy, I sprinkle it over with a weak solution "of arsenious acid, equal to about two ounces in a gallon of "water."

[Printed, 3½*d.*]

A.D. 1853, June 27.—N° 1553.

BROOMAN, RICHARD ARCHIBALD.—(A communication.)— "Improvements in printing or in producing designs and pat- "terns on stuffs and fabrics." These improvements consist in "printing or producing of designs and patterns on stuffs and "fabrics, by first printing or impressing thereon the required "design in a resinous substance or composition subsequently "rendered adhesive by heat, or by being partially dissolved, "and then applying thereon metal powder, metal leaf, flock, "powdered colours, and other dry powder; and whether such "designs so produced as aforesaid be employed alone, or in "combination with ordinary colour printing, or with dyeing." The fabric, after being printed with the resinous material, is caused to pass round a steam cylinder, and while the resin is soft the metallic powder, &c. may be applied by means of rollers. The fabric is then passed between pressing rollers, the upper and under one of which may be made of papier maché, and the middle one of hollow metal, and heated with steam. The superfluous powder, &c. may be removed by beating the fabric, or by brushing it with stationary and revolving brushes fitted in a tight case, through which the fabric is caused to pass. "If preferred, the resinous design may be rendered adhesive by "applying naptha or other like solvent, or the fumes of naptha "or other solvent." "When metal leaf is to be applied it may "be conveniently added by hand." "The printing with a

" resinous substance may be performed simultaneously with colour " printing." Mordants so printed along with the resin may be dyed, and the " powder, &c." may afterwards be applied to the resin when heated.

[Printed, 5½*d.*]

A.D. 1853, June 29.—Nº 1568.

SIEVIER, Robert Moore.—" Improvements in the manu- " facture of piled fabrics, and in machinery for effecting the " same." That part of this invention which relates to "printing," consists "in printing (in preference with Whytock's late patent " process) the pattern on the warp threads of double the usual " length required for one fabric, so that when such printed warp " is woven between two backs (which backs are made by the aid " of separate warps, placed in the loom by the means well known " to any practical weaver,) the printed warp being woven first " into one of these back warps and then into the other, the fabric " when so woven may, when cut into two pieces, produce two " distinct pieces of cut pile fabric, having a proper length and " similar pattern or design thereon, which would not be the case " if printed for a single cloth." The colour roller used for this purpose is made " double the width on its printing or colouring " surface of those now in use."

[Printed, 7½*d.*]

A.D. 1853, July 2.—Nº 1593.

BROOMAN, Richard Archibald. — (A communication from Depoully, Charles.) — " Improvements in impregnating, " saturating, or coating threads, yarns, and fabrics with metal," " which process the inventor terms "metallic dyeing." For " this purpose, the yarns, threads, or fabrics are impregnated " with a liquid, holding in solution or in suspension therein " a metallic salt, metallic oxide, or compound containing a metal " which is afterwards decomposed, so as to leave the metal con- " tained in such salt or oxide remaining amongst the fibres or " filaments of the yarn, thread, or fabric; after which (when " required) the yarn, thread, or fabric is introduced into a bath or " liquid, holding in solution or in supension therein the like or " some other metallic salt, oxide, or compound, for the purpose

" of impregnating, saturating, or covering it with the metal contained in such liquid, either in substitution or partly in substitution for, or in addition to, the metal with which it was " previously impregnated or covered, and either with or without " the aid of a galvanic battery." The Patentee prefers to use ammoniacal or alcoholic solutions of metallic salts or oxides; and for the reducing gas or agent he prefers phosphuretted hydrogen, or phosphorus in a state of vapour.

[Printed, 7½*d.*]

A.D. 1853, July 8.—N° 1627.

MADDICK, William.—(Provisional Protection only.) "An " improved mode of treating madder and munjeet, by which the " quality of the colouring matter contained in those substances is " greatly improved, and its application to dyeing and printing " much facilitated." "The first feature in my improved mode of " treatment is artificially to accelerate the progress of 'ageing,' so " as to arrive in a *few days* at the extreme point of excellence, " which by the natural process requires from two to three years " to acquire. The process to effect this is to spread the madder " (when ground) on a clean floor, and moisten it with water, " keeping it turned over regular every day." The "whole of the " coloring matter" is then extracted by the repeated application of "hot *distilled* water," and the solution is concentrated in an " enamelled vessel" by means of a steam heat, till "the liquor " has arrived at the consistency of treacle; it is then removed to " a stove heated by steam or hot air, placed on filters, and then " gradually dried."

[Printed, 2½*d.*]

A.D. 1853, July 8.—N° 1623.

POOLE, Moses.—(A communication.)—" Improvements in the " manufacture of printing rollers." These improvements consist in " the manufacture of printing rollers by casting them of an alloy " of which zinc is the basis, and the casting of such rollers in metallic moulds as herein described." The alloy of which these rollers are composed may consist of "12 parts by weight of pure red " copper," "three parts antimony, to which is added three parts of " lead," "and twenty-four parts of zinc." They should be melted separately and then added to the melted zinc; to this is added gradually "12 parts of tin," and the whole is cast into ingots. When these ingots are again melted, there is to be added to them "24 parts of zinc" and "12 parts of block tin," melted in a separate crucible. The mixture is to be well stirred with a wooden implement and then cast again into ingots. "This alloy is to be "cast into proper rollers for printing in suitable moulds, but I "prefer for this purpose to employ an apparatus which I call my "'compressing shell apparatus;'" "this apparatus consists of "two longitudinal semi-circular semi-cylinders so made as to "form, when the edges are joined together as shewn in the drawings, as near as may be a circular hollow centre, with machinery "or apparatus to compress gradually the above-mentioned metallic alloy when in a compressible state, and within such semi-"cylinders, by as near as may be an equal pressure along the "entire length of the cylinders." The desired pressure may be obtained by "forcing down wedges by blows or by pressure other-"wise applied."

[Printed, 6½*d.*]

A.D. 1853, July 15.—N° 1692.

TAYLOR, ISAAC.—"Improvements in machinery for printing." This invention consists in "employing three cylinders, or any "combination of sets of three cylinders, the axes of which are "always parallel, one of the three being freely deposited between "the other two, from one or both of which it receives rotatory "motion by contact and pressure, the nip which it undergoes "being greater in proportion as its position between them is "lower in relation to the horizontal diameter of the sustaining "cylinders." "Described in its simplest form, and as adapted to "printing from one engraved roller only, or, as it is called, a "single colour machine, my invention consists in employing two "cylinders parallel the one to the other, the axes of the two "being on the same plane, and which are placed at such a distance the one from the other as shall be less than the diameter "of a third cylinder which is deposited between them, and which "by its weight produces a nip, which nip will be greater or less "in proportion as this roller is less or more raised above a horizontal plane passing through the axes of the other two cylin-

" ders, or of one of them. The three cylinders being thus ar-" ranged, rotatory motion is communicated to them, either by " being applied to the axes of one of the two sustaining cylinders " or to both of them. The usual appliances of blanketing or " other elastic materials are employed in working this machine as " may be found best adapted to the nature of the work to be per-" formed by it." The upper (or middle) cylinder may be the engraved roller while the two under cylinders act as bowls; or " either or both of these may be made the engraved roller or " rollers, while the middle one serves as the boll, and as the " means of effecting the required nip."

[Printed, 7½*d.*]

A.D. 1853, July 16.—N° 1705.

DUNCAN, John Wallace.—" Improvements in adhesive soles " and heels for boots and shoes, and in apparatus used for pre-" paring and applying the same."

These improvements relate chiefly to the making of the soles and heels of shoes of gutta percha, or cementing soles and heels made of other substances with gutta percha, to the preparing of leather, and to similar improvements (see Abridgments on Gutta Percha). The Patentee also claims the ornamenting of such articles "by printing or stencilling various designs with adhesive " cement upon the wearing face, and applying thereon either " coloured flocks, powdered colours, metal powders, or leaf."

[Printed, 4½*d.*]

A.D. 1853, July 23.—N° 1741.

BARLOW, Samuel, junior, and PENDLEBURY, John.—" Improvements in machinery or apparatus for bleaching or " cleansing textile fabrics or materials." " The machinery or " apparatus employed comprises two or more vessels termed " 'keirs' or otherwise, made of iron or other suitable material;" " these keirs are furnished with valves and pipes communicating " with the bottoms and tops respectively of the opposite ones. " The 'piece' or other goods having been placed upon the " 'grids,' or other means of support within the respective keirs, " the upper grid or cap [which is introduced over the cloth] is " forced down and upon the said piece or other goods, with any

" amount of pressure required, by means of the wheels and " screws connected therewith, or by any other more suitable " mechanism. Bleaching liquids at a necessary degree of heat, " is first allowed to enter the one keir, and on to the upper " surface of the piece or other goods, and then steam [it may be " high pressure] is admitted into and at the top or other part " of the said keir, which forces the bleaching liquid through the " piece or other goods contained therein, thence out or through " the aperture at or in the bottom of the said keir into and up " the pipe or pipes communicating with the top or upper part " of the second or adjoining keir. The steam is then shut off " by means of a cock or valve from the keir, out of which the " bleaching liquids have just been expelled, and is admitted into " and at the top or upper part of the said second or adjoining " keir, forcing the bleaching liquid through the piece or other " goods contained within it (in like manner as operated upon in " the previous keir), into and up the pipe or pipes communicating " with the top or upper part of, and thus back into the keir first " acted upon. The above operations may be repeated until the " piece or other goods have become sufficiently bleached or " cleansed."

[Printed, 6½*d.*]

A.D. 1853, July 29.—N° 1774.

JARRETT, Griffith.—" Improvements in machinery or apparatus for stamping or printing colored surfaces." " These " improvements refer to an apparatus to be worked by the hand, " and adapted for the desk, counter, or writing table, by means " of which a colored mark or imprint may be produced upon a " series of papers, cards, or surfaces without any interval of time " being wasted between the successive impressions, the stamping " action of the machine bringing continually a fresh supply of " coloring matter to the die, which is therefore always kept ready " for employment. I prefer, in this apparatus, to employ carbonic " or other chemically prepared paper or material for the purpose " of producing impressions. The apparatus is put in action by " pressing down the die or type, through the medium of the " stamping lever in connection with the slide or pressure bolt." " The die or type being thus caused to descend, carries down

“ the traversing frame and chemically prepared paper or material, “ which is thus pressed against the paper or surface to be printed “ or marked, producing a colored impression thereon.” The Patentee claims “ the construction and employment of a self- “ feeding, coloring, and stamping apparatus or press ; and, “ secondly, the application of chemically prepared paper or “ material for obtaining colored impressions.”

[Printed, 6½*d.*]

A.D. 1853, August 3.—N° 1819.

CUMMING, John.—(Provisional Protection only.) “ Improve- “ ments in printing shawls, handkerchiefs, piece goods, paper “ hangings, and similar materials, and in the apparatus con- “ nected therewith.” The chief object of this invention is to “ do away with the necessity of engraving or otherwise producing “ numerous repeats of the pattern upon the printing rollers, the “ entire piece being printed from small rollers or segments of “ rollers containing but one or two repeats of the pattern.” The fabric to be printed is stretched upon a “ flat horizontal table, “ and the printing apparatus is born in a carriage which slides “ in V grooves upon a framing, which framing is capable of “ traversing in V grooves on each side of the table.” “ With “ a view to further reducing the cost of producing the printing “ rollers, it is proposed to build them up of rings, so that a “ great variety of patterns can be produced from a few simple “ elements.”

[Printed, 2½*d.*]

A.D. 1853, August 13.—N° 1903.

JOHNSON, John Henry.—(A communication from Weber, Emile.)—“ Improvements in dyeing or coloring textile fabrics “ and materials, and in the machinery or apparatus connected “ therewith.” This invention “ relates to an improved system “ or mode of dyeing, whereby the process is effected much “ more effectually and rapidly than by the ordinary method, ‘ and consists in the employment of a current of dye liquid, “ which is forced through the material to be dyed by means “ of a force pump, steam pressure, or any other convenient “ arrangement for forcing fluids. The material to be dyed

" is placed in a receiver with a double perforated bottom, " and the dyeing liquid is forced through it, entering by the " lower end of the receiver, and flowing off at the top into the " reservoir from which it is pumped. The receiver and reservoir " may be heated by means of steam-jackets. The washing of " such materials may be effected either before or after dyeing " by the same process; strong currents of water or other cleansing " fluid being forced through the material, as herein-before " described."

The goods to be operated upon, being placed in the vessel referred to, may be scoured, mordanted, dyed, and washed without removal.

[Printed, 5½*d.*]

A.D. 1853, August 13.—N° 1904.

JOHNSON, John Henry.—(A communication from Deseille, Louis Francois Alexandre). — (Provisional Protection only.)— " Improvements in the manufacture or treatment of gutta percha, " and in the application thereof." This invention consists in the application of " a carburet of hydrogen," " prepared from " the oil of tar," and washed with sulphuric acid and water, and purified by distillation with "chalk" and "carbonate sul- " phur," for the purpose of dissolving gutta percha. "Gutta " percha thus rendered liquid may be applied to the construction " of inking rollers for printing machines, and various other " similar purposes."

[Printed, 2½*d.*]

A.D. 1853, August 18.—N° 1936.

CURTAIN, William.—" Improved machinery for printing " textile fabrics, oil cloths, leather, paper hangings, and other " similar fabrics or materials." The machine whereby this is " effected, is composed of three principal parts (vizt.):—First, " the series of blocks on which the pattern is engraved or cut; " second, the colouring apparatus whereby the color is applied " to the block; and, third, the press by which the impression is " transferred from the blocks to the material or fabric to be " printed. The blocks are mounted in a travelling frame, which " is made to run on guides or rails placed on each side of the

" machine, so that the blocks may be brought one by one under
" the press in their proper order to produce the pattern. The
" colouring apparatus consists of a suitable number of troughs
" according to the number of colors to be printed, and each of
" these troughs is provided underneath with a color roller, over
" which passes an endless sheet or blanket, which receives the
" color from the color roller, and carries it into or across the
" machine, and under the color blocks, which are mounted on
" pins at their four corners, and are sustained by means of coiled
" springs at each corner, which will also serve to raise the
" blocks from the surface of the color cloths when the pressure
" is removed. In order to supply the blocks with color they
" are brought under rods or pistons, which are made to descend at
" the proper moment, and press the blocks on to the surface of
" the color troughs, from which the blocks will be raised by the
" force of the springs immediately the pressure is removed from
" their upper side. The cloth or fabric to be printed is rolled on
" a beam or roller, and passed over a printing table, over which
" is suspended the platten or pressing surface, and under which
" the blocks are successively brought, and when brought into their
" proper place over the fabric, the platten of the press is made
" to descend, and force the block down on the fabric, and make
" an impression thereon. The frame containing the blocks must
" then be moved forward until a second block is brought under
" the platten, which being made to descend a second time will
" press the printing block on to the surface of the fabric, and
" produce a second impression thereon, and so on until all the
" blocks have been operated upon, when the pattern on the fabric
" will be complete. The fabric is then moved forward the length
" of the pattern in order to bring a fresh part of the surface under
" the press.

[Printed, 1*s*. 5½*d*.]

A.D. 1853, August 22.—N° 1954.

WARMONT, VICTOR EMILE.—" Improvements in dyeing and
" ornamenting skins, fabrics, and other substances." These improvements consist as follows :—" The skin (or fabric or other
" substance) having been previously prepared for dyeing in the
" ordinary manner, and mordanted according to the nature of the
" dye to which it is to be subjected, is stretched and fastened with

the wool upwards on a flat board, and over the skin is placed another board, which is cut away in those parts which are to be operated on by the dye;" "and when a sufficient number of skins are thus placed between boards they are bound together by bars of oak, and iron rods and screws and nuts," "and between each set of boards a frame is placed; this allows the dye liquid to get to both sides of the boards, and thus prevents warping; all these boards and frames are furnished with pegs on their upper surfaces, and holes on their under surfaces, so as to prevent them from sliding the one on the other. The bundle thus formed is placed in the dye liquor, which is raised to the necessary temperature, and is there kept for any length of time which may be considered necessary. And I will here remark that when I wish to produce a pattern of many colours, in addition to the dyed ground colour, I do it by placing the colour on the raised parts of the board, or, what is better, on the skin itself, and in this case I generally place two skins face to face, and thus obtain skins dyed with a right and left handed pattern. When the frames containing the skins has remained in sufficient time in the dye vat they are removed therefrom, and washed with water; the skins are then unpacked, and the colours are fixed by steaming in the ordinary manner."

[Printed, 5½*d.*]

A.D. 1853, August 30.—N° 2012.

NEWTON, ALFRED VINCENT.—(A communication.)—"An improved process of dyeing, part of which process is also applicable to bleaching." This invention consists, firstly, "in submitting the goods during the process of dyeing or bleaching to pressure in any of the various methods described, or their equivalents in combination with some efficient method of keeping the folds of the material apart from each other as described, that the dyeing and bleaching liquor may have free and uniform access to all sides of it."

Second, in "exhausting the air from the vat containing the goods before or after the admission of the dyeing liquor, either with or without the subsequent extra pressure for the purpose of expelling the air with which the pores of the material are filled before the dyeing liquor is forced in."

Third, in the "method of bleaching, by means of which I am " enabled to perform all the steps of the process in one vat, in- " cluding the preliminary, intermediate, and final washings, with- " out moving the goods during the operation."

Fourth, in the " process of machine dyeing (that is to say) com- " municating to the goods while in the vat a reciprocating back- " ward and forward motion, instead of the continuous motion " through the machine heretofore employed." In the dye vessel, which is made of sufficient strength to bear pressure or resist a vacuum, the goods may be threaded over and under rollers, which are caused to "revolve alternately in opposite directions." In bleaching the goods are placed in a similar vessel, and the various liquors and water required during the process are introduced, and caused to act on the goods in succession till the bleaching is effected.

[Printed, 8½*d.*]

A.D. 1853, September 3.—N° 2038.

NAGLES, ALBERT.—" Improvements in machinery or apparatus " for washing, bleaching, dunging, and dyeing woven fabrics." These improvements consist in the employment of " kiers, becks, " or cisterns of any ordinary construction, in one of which I place " a series of rollers near the top and bottom of the same, over " and under which the woven fabric passes (in an open or extended " state), and through the water or other liquid or matter contained " in the kier. In another adjoining kier I place a quickly revolv- " ing beater or beaters, or buckett, which acts against the fabric, " either upon the front or back of the cloth, as required; at suit- " able intervals are placed weighted squeezing or nipping rollers, " which also act as drawing rollers to draw the fabric through the " machine. In some of the kiers I also place steam pipes, for the " purpose of boiling or heating the contents thereof." A series of vessels fitted up as described may be placed end to end, for the purpose of performing continuously such processes as " fly dung- " ing," " second dunging," " washing and finishing printed goods " ready for dyeing, and also for dyeing goods when modified as " required," " as well as washing, bleaching, and soaping plain " goods."

[Printed, 8½*d.*]

A.D. 1853, September 9.—N° 2081.

MOTAY, Cyprien Marie Tessié du, and DUFLOS, Edmond Louis.—"Improvements in the mode of bleaching fibrous "and other substances." This invention consists, first, "in sub- "jecting the articles to be bleached to the action of a current of air "or oxygen gas which has been acted upon in such a manner as "to convert oxygen into its allotropic form, such as bringing it "in contact with phosphorous, or acting on it by electricity, or by "the combustion of metals therein, or otherwise, and we arrange "the apparatus in such a manner that the same portion of air or oxygen gas is caused to act again and again," by causing the air or oxygen gas to circulate through the goods placed in a closed chamber, by means of a force pump.

Secondly, "in bleaching, by immersing the articles to be "bleached in fluids which have the property of absorbing oxygen, "and afterwards, when heated, of releasing it in the allotropic "form, or of immersing the articles to be bleached in fluids which "have the property of yielding allotropic oxygen when acted on "by other substances; of the first class fluids the liquid hydro- "carbons, oils, and water containing green plants are examples; "and of the second class, the soluble hypo-chlorites and chlo- "rates, acted on by peroxide of manganese or the peroxides of "other metals, are examples."

[Printed, 5½*d.*]

A.D. 1853, September 12.—N° 2110.

NEWTON, Alfred Vincent.—(A communication.)—"An im- "proved manufacture of printing blocks and cylinders." "This "invention consists in forming the moulds into which print- "ing blocks are to be cast, of rectangular or other shaped "prisms of a suitable size and of two different lengths. "These types or prisms are set up to form the moulds in "such a manner that the short ones shall form the sunken "part of the mould, and the long ones the raised portion; so "that when the material of which the block is to be formed "is cast into the mould, the elevated portion of the mould shall "form the depressed portion of the block, and the depressed por- "tion of the mould shall form the raised or figured portion of "the block." "The figure to be produced is first marked off

" into squares of the same size as the prisms; each color is then " read off, and a separate mould is set up for it." "The types or " prisms may be made of any 'suitable material,' and the printing blocks may be made of any material, that by fusion, or by " mixture with water or oil may be rendered sufficiently liquid or " plastic to be poured or forced into the moulds." "Furthermore, it is proposed to extend this invention to the production " of cylinders as well as blocks."

[Printed, 5½d.]

A.D. 1853, September 13.—N° 2117.

SINGTON, Adolphus.—(A communication.)—"Improvements " in machinery, or apparatus for grinding or setting 'doctors,' " used in calico and other similar printing machinery."

The Patentee claims the "application, employment, or use of " the above particularly described (in the Specification) apparatus " or machine for the purpose of planing, setting, or straightening " the edges of 'doctors.'" "The apparatus employed, consists " of a frame grooved or fluted upon the top, and carrying a travelling carriage furnished with a setting tool, which is actuated " by means of a chain and pulley, or otherwise, to which rotary " motion is communicated from a winch handle (or driving " pulley), by means of spur gearing; the 'doctor,' secured by " clamps or fastenings at each end of the frame, is raised to meet " the tool, or lowered, as occasion may require. After being thus " planed, &c., the doctors merely require one or two touches of a " stone or hone, to remove the 'burr' left by the former process." " There is also an arrangement for giving the 'doctor' a concave or convex edge, as necessity may require."

[Printed, 7½d.]

A.D. 1853, September 14.—N° 2126.

WILSON, John.—"Improvements in and applicable to machines " for printing fabrics." These improvements consist, "first, in " dispensing with the endless woollen blanket usually employed " in printing machines, and substituting in its stead an endless " web or piece of calico, or other cotton fabric." "Secondly, in the " application of the machinery shown and described, for stretching and tightening the endless web of cotton fabric." "And, "lastly, giving motion to the drying cylinders, by which the "endless web is dried by the steam engine or other motive "power." The endless web, which may be a piece of calico, before it passes under the main cylinder (bowl), is conducted under a small stretcher, and then over a large stretcher. These stretchers are carried round by the endless web. The smaller one is made with "a right and left handed screw," and the bars on the larger one "with right and left diagonal flutes." "The requisite revolving motion is given to the drying cylinders in order that their "peripheries may work at the same speed as that of the cylinder, "by means of a pulley and strap."

[Printed, 6½*d.*]

A.D. 1853, September 14.—N° 2134.

KAY, Richard Dugdale.—"Improvements in block printing." This invention consists of a "new mode of shading, mixing, or "blending colors used in block printing," and may be effected thus: "I take a piece of wood of dimensions varying according to the size "of the block to be used in the printing. Having planed this "wood to a true surface, I take the block which has the pattern "upon it to be shaded, and print an impression of it on the said "wood in any colour or substance that will show clearly the pattern "on the wood. I then cut a hole in the wood of the shape thus "indicated by the block, and I divide this hole into two parts, by "a slip of wood or other suitable material; and having made the "top of this division level with the surrounding part of the "wood, and having also formed a channel from each division of "the hole, terminating at one end of the wood in two separate "orifices, I apply a layer of resin, or other adhesive and impervious substance, equally over the surface of the wood, and "while it is in a state of fusion, I lay over it a piece of flannel or "other suitable fabric, and then surround the hole on the upper "surface of the flannel, with a line of resin or other suitable substance, to retain the colour within certain limits. The resin "having had time to cool and to adhere firmly to the flannel, the "apparatus is complete. I proceed to work by introducing two "colors into the hole (divided and covered with flannel, as explained), by means of the channels communicating with this "hole. I fill one half of the hole with a dark shade of colour,

“ and the other half with a pale shade of the same colour. “ There is no union of these two colours till they have both “ risen to the exterior surface of the flannel covering the hole. “ When the two colours have made their appearance on the “ upper surface of the flannel, and a union of the two has taken “ place, I take the block which I use for printing an impression “ of on the wood and apply it to the hole (now covered with “ flannel and supplied with color, as explained), and transfer it “ to the cloth which is to be printed. It is obvious, that two “ shades of the same color more or less blended together, will “ thus be conveyed to the cloth.” The divisions may be of any shape, and the holes and colours used may be as numerous as necessity requires.

[Printed, 3½*d.*]

A.D. 1853, September 15.—N° 2140.

WHITE, CHARLES.—(Provisional Protection only.) “ Improve- “ ments in blocks for block printing.” These improvements are effected “ by composing a single block of twenty-one inches square “ out of four blocks, each five and a quarter inches broad, ‘ and twenty-one inches long, which, being laid side by side, “ and screwed or otherwise suitably fastened to a back board, “ form one firm block. Each narrow block may be supposed to “ be of the full width of any intended bordering or other requisite “ pattern; thus, No. 1 may contain all the parts of the pattern “ requiring to be printed blue; No. 2, all the red; No. 3, all the “ brown; and No. 4, all the yellow; and so on in like manner “ for any other colours.” “The workman proceeds in the use of “ this compound block the same as if he were using the common “ single block, with the exception that he prepares the com- “ pound block with four colours at once. When he has printed “ as many pieces as desired with the block, as first arranged, he “ next alters the block by taking out the top narrow block, and “ placing it below the other three, and arranging his colours it “ the same order,” and so on till then four colours have been transposed and the pattern completed. Blocks of this large size may be partially slung by a cord passing over a pulley, to the other end of which is attached a balance weight.

[Printed, 2½*d.*]

A.D. 1853, September 23.—N° 2199.

BELLFORD, Auguste Edouard Loradoux.—(A communication from Guinon, Nicolas Philibert.)—(Provisional Protection only.) "The application of the extract of the pine and "other trees of the fir tribe to dyeing and colouring processes." "This invention consists in the employment of the extract of the "pine and other trees of the same class, as a substitute for "catechu, in dyeing in black (called mineral) with raymond "blue ground (cyanure of iron), as well as in solid greens. The "extract, which is obtained in the usual manner, may also be "used as a precipitating body in the manufacture of beer."

[Printed, 2½*d.*]

A.D. 1853, September 27.—N° 2217.

BURY, Isaac, and GREEN, William.—"Improvements in "treating, stretching, or finishing textile fabrics, and in machinery or apparatus for effecting the same." This invention consists, "first, in communicating tension to textile fabrics when out of the loom, in the direction of the warp and of the weft "simultaneously, for the purpose of keeping them to their "original size, or nearly so, in one direction, while elongating or "distending them in the opposite direction thereof; also in "elongating textile materials after the same have been partially "woven, and preparatory to the final weaving operation." The apparatus may consist of a frame, in which are placed one or more sets or series of rollers, between which the fabric is caused to pass. "In its passage from one end of the machine to the other "end thereof, the fabric passes between clips or bars suitably "adjusted on either side, and capable of travelling in opposite "directions (so as to be adapted to different widths of material,) "by means of screws working in the frame work." When the rollers are grooved the clips may in some cases be dispensed with. "At either end of the machine a row of rollers are fitted into "sliding pieces or carriers, which work in suitable guides, and "which receive a traverse motion, either in one or in opposite "directions."

Secondly, "in imparting pliability or softness to textile fabrics, "or what is technically termed an "elastic finish," without the "use of pin points on the sides of such fabrics; as also in giving

" softness to and in elongating textile materials, whether the " same have been wholly or only partially woven, by synchronous " operations." This may be effected by a machine somewhat resembling that already referred to, the rollers being made "capable of receiving a zig-zag or alternating traverse motion." The fabric may be distended by means of a series of clips.

Thirdly, "in removing certain colours from, and imparting " colours to textile fabrics, whether the same are wholly or only " partially woven, by forcing currents of hot air, or vapours, or " gases, charged with various chemical agents, upon the same." This may be effected by placing the distended fabric in a chamber, and causing the chemical agent to be introduced; or by placing the fabric between perforated plates, and forcing the fumes, vapours, or gases through it.

Fourthly, " in the employment of hot air for drying textile " fabrics, whether the same are woven or only partially woven, " when subjected to either of the before-mentioned operations." Hot air is caused to impinge against the fabrics " as they pass " from the machine in which they have been elongated, distended, " treated, or finished."

And, lastly, this invention consists in the necessary " arrangements of machinery " " for carrying into effect tne several parts " of our said invention."

[Printed, 7½*d.*]

A.D. 1853, September 28.—N° 2219.

POOLE, MOSES.—(A communication.)—" Improvements in the " manufacture of pulp for paper makers." This invention relates, firstly, "to the production of paper pulp from the leaves of the " dwarf palm, straw, and other similar substances." The pulp being produced " is caused to boil for five or six hours with water, " to which one or two per cent. of the sulphuret of an alkali, such " as potassa, soda, or lime, has been previously added. The pulp is " then washed, and it is afterwards acted on during about twenty-four hours by water, containing one or two per cent. of an acid " that may decompose the sulphuret contained in the pulp, and " allow escape of the sulphur in the state of sulphuretted hydrogen, " which, passing through the pulp as it is formed, acts in some " measure on the colouring matter." The further bleaching of the pulp may be effected by plunging it into " a bath composed

" of hypochlorite of lime, potash, soda, or magnesia, in which " bath is also placed small bags containing small pieces of per- " oxide of manganese or other metallic oxide, or other substance " capable of decomposing the hypochlorites into chlorides and " oxygen, which being thus brought into contact with the pulp in " its allotropic form, acts as a most thorough bleaching agent. The pulp is then boiled in a lime or alkaline solution; and the process of bleaching and boiling is repeated till the pulp becomes white.

[Printed, 9½*d*.]

A.D. 1853, October 11.—Nº 2329.

WORRALL, JAMES, Junior.—" Improvements in the method of " dyeing fustians and other textile fabrics, and in the machinery " or apparatus connected therewith." " These improvements are " effected, first, by passing two or more pieces simultaneously " through the apparatus; secondly, in carrying the pieces up- " wards over a geered or drawing through roller placed above the " cistern and in a perpendicular line with the partitions forming " the 'becks;' thirdly, in employing a pipe heated by steam or " other suitable means to separate the pieces previous to their " passing over the said geered or drawing through rollers, and at " the same time to admit air to the inner sides of each piece, and " also to heat the same; fourthly, in employing a perforated pipe " to separate the piece before or after (as may be desired) they " have passed over the said geered or drawing through rollers, " through the holes in which the dyeing liquor or mordant is " forcibly injected on to and into the cloth, so as the more " effectually to saturate the same; and, fifthly, in the introduction " of a cylinder into one or more of the becks into which steam " or any other suitable heating product is admitted for the pur- " pose of heating the cloth, and at the same time also the dyeing " liquor which surrounds it." The apparatus may consist of a series of becks placed end to end, through which two pieces are at the same time and together caused to pass, first under a roller placed in the first beck, then up to some height and over the drawing roller and down again into the second beck, and so on through all the becks. As the pieces rise to the drawing roller they are separated by and pass on opposite sides of a steam pipe, and on descending they are again opened by the spirting pipe referred to, passing on each side of it. The cisterns contain the saddening and dyeing materials and the requisite mordants.

[Printed, 10½*d.*]

A.D. 1853, October 17.—N° 2389.

ROY, William, Senior.—(Provisional Protection only.) "Im-" provements in the preparation or thickening of colouring " matters for printing." These improvements " relate to the " application and use of *carigeen*, or what is commercially " known as Irish moss, for thickening and preparing the colours " used by printers of calicoes and other goods. The moss is " gathered in the ordinary manner, and is then boiled in pure " water alone, so as to be reduced to a jelly consistency. In " this condition it is added to the colour and mixed up there-" with, of a consistency and to an extent suited for the special " purpose to which it is to be applied."

[Printed, 2½*d.*]

A.D. 1853, October 19.—N° 2410.

ROY, William, Senior.—" Improvements in printing textile " fabrics and other surfaces." These improvements relate "to an " arrangement of machinery to be employed for printing textile " fabrics of various kinds from surface rollers or relief cylinders, " as a substitute for the usual hand block work. A transverse " guide frame is placed above and across a flat printing table; " and in this frame, as a horizontal guide, a travelling printing " carriage is fitted to work over the table at pleasure. The lower " side of the main guide rail carries a toothed rack, into which a " spur wheel on the first motion shaft is arranged to gear. This " shaft, together with the whole of the other gearing, is carried in " the travelling carriage, so that on causing the first motion shaft " to revolve, the carriage, with all the printing apparatus, is caused " to traverse its guide. On the first motion shaft is also placed a " roller or drum, over which the endless sieve or feed cloth is " passed, a similar drum being fitted up alongside for working in " concert with the first in supporting the sieve. This second " drum presses on the upper side of a supplying roller, partially " immersed in the colour box, carried along with the gearing and " carriage. A continuation of the gearing also actuates a lower

" horizontal shaft on which is placed the surface printing roller, " arranged to traverse in contact with the fabric stretched across " the table beneath. The lower length for the time being of the " endless sieve traverses in contact with the upper side of the " printing roller, so that as the machine is worked to traverse the " roller the latter thus receives a uniform supply of colour." Several sets of rollers and furnishers may be actuated by one arrangement of gearing. The table may be made capable of swivelling round, or it may itself be caused to traverse instead of the printing rollers. "The printing roller may be caused to draw in the " elastic slack of the fabric by giving the roller a surface velocity " slightly greater than that due to its actual traverse."

[Printed, 6½*d.*]

A.D. 1853, October 20.—N° 2426.

ROTH, JULIUS AUGUSTUS.—"Improvements in bleaching and " drying of fibres or fibrous materials, parts of which improve" ments is applicable to the drying of woven and other textile " manufactures." "This invention relates to the bleaching of " yarn in the hank by means similar to that which I employ " under my patented process for bleaching flax straw."—(See Specification, A.D. 1853, May 25th, N° 1302.)

[Printed 6½*d.*]

A.D. 1853, October 21.—N° 2430.

JOHNSON, JOHN HENRY.—(A communication from Lefevre, Jacques.)—(Provisional Protection only.) — " Improvements in " the treatment or manufacture of gutta percha, and in the appli" cations thereof." "The raw material is cleaned and purified by " being passed through a mill having indentations or teeth formed " within a fixed chamber, and similar indentations on the surface " of a revolving cone working inside this chamber, from which it " falls on to toothed rollers beneath and between which it is " drawn by their revolutions." "The stringy or tough parts are " fumigated and rendered white, so that it may receive any colour " required." For liquifying gutta percha, " carburet of hydro" gen," obtained from the distillation of pit coal, is employed. Gutta percha so liquified may, in conjunction with glue and treacle, be employed for making printing rollers; and casts may be taken with the gutta percha solution alone from engraved plates of wax, and formed into surface printing rollers. Tubes, vases, statuettes, varnishes, &c., may also be formed of this material alone, or when combined with other gums.

[Printed, 2½d.]

A.D. 1853, October 21.—N° 2440.

GATTY, Frederick Albert.—"Improvements in printing or "producing colours on textile fabrics." This invention consists in "the decomposition of alum or sulphate of alumina by chlorate "of lime and chloride of calcium, obtained in the manner described, and the application of the resulting chlorate and hydrochlorate of alumina for fixing and oxidising steam colours." "I saturate milk of lime (of about 1·10 specific gravity) by a "stream of chlorine gas, thereby producing a solution containing "chloride of calcium and chloride of lime; this operation and "product is well known and forms no part of my invention. I "then dissolve six hundred pounds of alum in two hundred "gallons of water, to which I add one hundred gallons of the "above solution; thus chlorate and hydro-chlorate of alumina are "obtained in solution, and sulphate of lime in a precipitate. "The former I separate from the latter by decantation or filtration. The solution of chlorate and hydro-chlorate of alumina "thus obtained constitutes my improved mordant, which is "applied in the ordinary manner in the preparation of colors."

[Printed, 2½d.]

A.D. 1853, October 25.—N° 2468.

DAVIS, Marcus.—(A communication.)—"Improvements in "the treatment of fibrous materials other than flax or hemp." "The material to be operated on is subjected to the action "of steam for about eight or ten hours, then dried and broken. "A solution of about one pound of alum [or of sulphate of "alumina, borax, common salt, Epsom salt, Glauber's salt, nitre, "sal ammonia, or an equivalent of any one of these] is made "in water sufficient to cover the matter to be reduced to fibre, "which is kept in the solution from five to twenty minutes, or "longer if necessary. The fibre may then be bleached in the "usual way;" or the clear liquid from five pounds of chlorate

" of lime" may be put into the vessel containing the fibre (as above). When it becomes "saturated," it is to be "taken out " and washed thoroughly in clean water and dried." Excess of " gummy or resinous matter" may be removed by steeping the fibre first in warm water, and then in warm or even boiling water, containing a little "green soap." The fibre is then dried at a low temperature, and softened by passing it through between rollers finely grooved.

[Printed, 2½*d.*]

A.D. 1853, October 26.—N° 2470.

WOODWARD, George Gower.—" Improvements in the manu- " facture of carpets." These improvements relate in part to arrangements and combinations of coloured threads and yarns in the manufacture of carpets; also to the use of the material called " patent flax cotton" in the manufacture of piled fabrics. Fourthly, this invention consists "in a mode of printing, dyeing, " or coloring the aforesaid yarns, and arranging the same previous " to weaving." "I dye or print the parti-colored warps as well as " the self-colored ones by direct immersion, so as to give them all " the brilliancy and durability of ingrained colors, by allowing " certain portions of the yarn to fall into pans or small coppers " containing the dye or colouring matter, thus dyeing the yarn of " different colors at stated intervals, the combination and arrange- " ment of which will produce the intended design or pattern." The length of yarn " between the rollers is dyed by bringing the " 'coppers' (dye cisterns made of tin or other metallic substance) " containing the different colors under the yarn, which passes " through the openings in the sides of the 'copper.'" The "lid " is shut down and fastened, the flanges press the yarn tightly at " the sides of the copper, which prevents the color or dying mate- " rial spreading beyond the width of the copper." An instrument called the " displacer " is then put into the liquor which is thereby caused to rise above the yarns and thoroughly saturate them. After dyeing the yarns are to be washed, dried, and wound on bobbings properly marked.

[Printed, 5½*d.*]

A.D. 1853, October 26.—N° 2479.

JOLY, Romain.—(Provisional Protection only.) "Improvements in dyeing." "This invention relates to an improved "mode of fixing, by means of copper and the bichromate of "potass, the colouring matter extracted from dyewoods, and "causing the colouring matter when applied to wool, silk, or "other fibrous substances to be solid and permanent." "The "wool, silk, cloth, or fabric to be dyed is first steeped in a bath "of hydrochloric acid for the purpose of cleaning the same, and "disposing it for oxidation, after which it may be placed in a bath "of any vegetable colouring matter, such, for example, as the "extract from any dyewood, and it should be kept boiling therein "for half an hour or more."

"The materials to be operated upon are then placed in a second "bath composed of sulphate of copper and bichromate of potass, "and should be allowed to boil therein for about a quarter of an "hour. The proportions of the materials to be employed for this "second bath are about four per cent. of sulphate of copper and "two per cent. of bichromate of potass."

[Printed, 2½*d.*]

A.D. 1853, October 27.—N° 2490.

McNAUGHTON, William.—(Provisional Protection only.)—"Improvements in printing yarns, or worstedsf or weaving carpets; "also in printing carpets, woollen, silk, cotton, and other textile "and felted fabrics or fibrous substances." "The nature of these "improvements consists in the use and application of hollow metal "pattern cylinders, either separately or in combination with wood, "instead of being wholly of wood, for printing patterns or devices, "or plain surfaces of color upon yarns, or worsteds for weaving "carpets; also in printing carpets, woollen, silk, cotton, and other "textile and felted fabrics, or fibrous substances or materials;" "which improvements have reference to a specification, dated "18th April, 1853, on behalf of William McNaughton."

[Printed, 2½*d.*]

A.D. 1853, October 27.—N° 2494.

BROOMAN, Richard Archibald.—(A communication.)—"Improvements in the manufacture of coloured and orna-

" mented fabrics." "The first part of this invention consists in " coating or impregnating, either entirely or partially, threads " of any textile material, which are subsequently to be woven " into a fabric in the ordinary manner, with some mastic or " mordant, which will not interfere with the weaving, and " which after being woven may be rendered adhesive by heat, " essential oils, or otherwise, so as to retain colours or orna- " menting matters, such as pigments, metal leaf or powder, " flock, &c. &c." The Patentee prefers the use of "bitumi- " nous and resinous substances, and preparations of caoutchouc, " gutta percha, and generally such substances as will become ad- " hesive or viscous by heat or by the application of essential oils, " or other solvents; or gummy and gelatinous substances, which " may be rendered adhesive or viscous by steam, water, or other " liquid." When the "pigment, metallic leaf," &c., has been applied they are "immediately submitted to strong pressure be- " tween calendering rollers or otherwise," by which means they are caused to adhere to the prepared surface of the fabric. The second part of this invention consists in impregnating threads, either entirely or partially with colours ordinarily used in printing and dyeing of goods (those colours called steam colours), before or while being woven, and which colours are only fixed (by means of steam) after the threads have been woven into a cloth or fabric.

[Printed, 3½*d.*]

A.D. 1853, October 31.—N° 2515.

COUBROUGH, Anthony Park.—Improvements in printing textile fabrics and other surfaces. These improvements consist, " first, in the general arrangement and construction of machinery, " apparatus, or means to be used in printing textile fabrics and " other surfaces," by means of blocks, whereby superior speed in printing and efficiency of action are secured. "Second, the sys- " tem or mode of arranging block printing apparatus, wherein " the fabric to be printed is guided and conveyed by rollers " alternately over a range of impression tables, and through a " drying chamber, being finally made to traverse the latter cir- " cuitously, so as to be delivered in a thoroughly dry and finished " state." "Third, the system or mode of arranging the colour " boxes and block stands in connection with the impression tables

" employed in block printing, so as to facilitate the operations of " the several printers, and prevent them from interfering with each " other's movements." " Fourth, the system or mode of apply- " ing the tractive power at several points to fabrics requiring to " be passed through a range of printing apparatus, or through a " series of impression movements, so as to equalise the tension of " the fabric throughout." " Fifth, the application and use in " printing apparatus, wherein impression tables are employed, as " herein described, of endless blankets of such dimensions as to " descend into a drying chamber beneath the impression tables, " and reascend thence in a sufficiently dry state for continuous " use." These improvements relate to a printing apparatus which may be composed of four printing tables placed end to end. The fabric to be printed passes over these tables, and is simultaneously moved forward, by means of gearing, with the grey cloth and travelling blanket. The two latter are caused to descend into a room beneath where they are dried, and are brought up again for further printing operations. By the above arrangement a printer may work a separate colour at each side of each table. A roller for " blotching " may be attached at the end of the apparatus, and be driven round at a regulated rate by the gearing.

[Printed, 11½*d.*]

A.D. 1853, November 1.—N° 2531.

HEYWOOD, James.—(Provisional Protection only.) " Im- " provements in machinery or apparatus for printing yarns." This invention " relates to printing such yarns as are required " to be partially printed in the 'hank,' leaving intermediate " spaces blank, and to be subsequently employed in manufac- " turing clouded or speckled goods or fabrics." " Parts of the " yarns not to be printed upon, or to be kept blank, are to " be pressed or preserved between flat ribs, or bars, so secured " or held together (the yarn being nipped between them), as " entirely to prevent any of the printing color being introduced " upon such spaces." "The operation of printing (the exposed " portions of the yarn) is performed by passing rollers along " longitudinal supporting rails under the yarns (which are dis- " tended in hanks crosswise), from one end of the frame of yarn to " the other."

[Printed, 2½*d.*]

A.D. 1853, November 1, Nº 2532.

BALE, Thomas Sanders, and LUCAS, Daniel.—"Improve-
" ments in ornamenting the materials of and articles manufac-
" tured in pottery, as bricks, tiles, slabs, &c., and also in glass,
" slate, stone, and other plastic substances."

This invention consists, "first, in the modes of producing
" ornamental effects upon the surfaces of materials such as pot-
" tery, glass, slate, and glazed and enamelled iron, in which the
" entire pattern to be produced is printed in stencil and trans-
" ferred to the article to be ornamented."

"Second, in decorating bricks, tiles, slabs, and other architec-
" tural adjuncts and fittings, iron, slate, stone, wood, and also
" glass and other diaphanous substances."

And "third, the decorating articles in ceramic, vitreous, and
" plastic manufactures, for floors and similar purposes, by the
" representation thereon of landscapes, flowers, fruit, and other
" pictorial subjects." "By these improvements, in place of en-
" graving the outline only of the pattern on the copper, the en-
" tire pattern intended is fully engraved." "An impression from
" the engraved plate is then taken in the usual way upon tissue
" paper," "and transferred to the sized surface in the ordinary
" way of potters," or the article may be oiled over and "dusted
" with the colour [or gold] which is intended as the ground."
The printed stencil is then applied to the moist surface of the article, and afterwards carefully peeled off, which "brings away
" with it the colour from all the parts of the article which the
" printed stencil has come in contact with, the other portions not
" touched by the print forming the pattern." In carrying out
" the invention upon articles when heat is not required, and upon
" other substances, as stone, slate, wood, &c. which will only bear
" a slight temperature, as also upon glass," "opaque bodies,"
" chimney pieces," "pillars," "tables," "panels," "pillasters,"
" mouldings," "ceilings," &c. The process has to be varied and adapted to the material operated upon.

[Printed, 3½*d*.]

A.D. 1853, November 14.—Nº 2637.

COUBROUGH, Anthony Park.—(Provisional Protection only.) "Improvements in bleaching apparatus." "This invention re-

" lates to the so constructing the boiling pots or vessels used " by bleachers in the ordinary bleaching process that waste by " the boiling over of the bleaching liquor may be prevented." A vertical pipe may be inserted into the top of the keir, and carried up to a considerable height; at the top of the pipe is a small closed "reservoir or receiving chamber" and from the top of this chamber is taken up to a greater height another but smaller pipe, which returns down again and enters a second small reservoir. Any fluid which may accidentally boil over is carried up the vertical pipe and into the first chamber, and any excess of steam or bleaching matter may pass up through the second pipe and there gets condensed and falls into the second chamber; when the steam subsides in the keir the fluid so collected will flow back again into the keir.

[Printed, 2½*d.*]

A.D. 1853, November 16.—N° 2654.

RONALD, John.—" Improvements in fixing colors on yarns and " cloths." These improvements consist "in the application of " heat externally to the vessel or chamber in which yarn or cloth is " introduced for the purpose of having the colors fixed as herein " explained, in place of introducing free steam into the box or " chamber without external heat, as has heretofore been the prac- " tice." The yarn (or cloth) in the wet state may be placed in the interior of a double cased apparatus. The space between the cases may be heated with steam and the moisture or steam arising from the heated goods inside will fix the colors.

[Printed, 5½*d.*]

A.D. 1853, November 18.—N° 2680.

MELVILLE, James.—" Improvements in printing textile fabrics " and other surfaces." This invention consists in improvements in surface roller printing, and relates to "improvements upon the " printing machinery for which I obtained grants of British Letters " Patent in the year 1852." The Patentee claims, "first, the " general arrangement and construction of machinery, apparatus, " or means to be used for printing textile fabrics and other sur- " faces, as described in the specification."

"Second, the application and use in printing shawls and other "fabrics of a slide rest guide apparatus for guiding and regulating the action of the pattern printing roller."

"Third, the system or mode of connecting the slide rest printing apparatus with the impression or main cylinder gearing by "means of a grooved shaft traverse movement."

"Fourth, the system or mode of arranging the printing roller "wherein the lathe centres on which the printing surface is "turned up are made to answer as the working centres during "the printing action."

"Fifth, the system or mode of adjusting the position of the "printing roller at the repeat shifts by means of notched, divided, "or serrated plates set to correspond to the different repeats."

"Sixth, adjusting or setting the printing roller, or commencing "an impression, by means of a 'dog' or adjustable holder."

"Seventh, the system or mode of printing, wherein all the colours "in a repeat are put in or printed in succession without shifting "the printing roller, by means of moveable color apparatus."

"Eighth, printing carpeting and other fabrics by means of "printing rollers, corresponding to the several colours in the "repeat, set one in advance of the other in the direction of main "cylinder's revolution, that revolution being continued until all "the colours are duly impressed upon or into the fabric."

"Ninth, preventing distortion or warping up of the impression "surface of the main cylinder or other surface on which the "fabric to be printed is placed, by gumming or cementing down "fabric coatings thereon, or by the insertion of holding pins."

"Tenth, the application and use of slide rest guides for printing "on flat surfaces."

"Eleventh, the system or mode of printing wherein the feeding "in and taking off of the fabric are conducted simultaneously as "herein described."

The machine referred to under these headings consists generally of a large drum, round which is placed the fabric to be printed. This drum (or large bowl) has a spur wheel round its circumference which works into a pinion which actuates the printing roller and colour furnishing apparatus. The drum has a traversing motion whereby it can be drawn out of contact with the printing roller. The printing roller is placed on a slide rest carrier with a slide bed and has also a traversing motion.

[Printed, 11½*d.*]

A.D. 1853, November 25.—N° 2748.

JOHNSON, John Henry.—(A communication from Feldetrappe, Auguste.)—" Improvements in the production of printing " surfaces."

The Patentee claims,—" First, the production of different tints " on printing cylinders, plates, or cutting rollers by lines made, " as described."

" Second, the mode of forming the contours of patterns in dots " or diagonal lines, in the manner and for the purpose described."

" Third, the system or mode of engraving by 'aqua fortis,' as " described."

" Fourth, the system or mode of increasing the size of a pattern " by varying the order of the tints in the repetitions." " The " contour of the pattern, of which the ground is to be engraved, " is composed of sufficiently fine dots, or in diagonal lines close " together. These contours may be engraved on the cylinder " either by a cutting roller, by manual labour, or by machinery. " After this operation, the cylinder is varnished with varnish dis- " solved in spirits of turpentine, and its surface is traversed the " entire length and circumference by parallel diagonal lines, the " cutter or marker entering the metal to a certain extent and " raising the varnish along its course. These lines are made by " the cutting machine with the aid of a steel or diamond point. " If the contours of the patterns have been made in diagonal lines " running from left to right downwards, the lines traced on the " surface of the roller should run in an opposite direction, or " from right to left downwards. The figures or pattern of the " roller thus lined are coated with varnish, the ground of the " roller being bitten with the acid." If the pattern contains " large dark surfaces," " the engraved roller is cleaned and re- " varnished entirely, so as to fill the hollows with varnish; it is " afterwards ruled diagonally in either direction, according to the " requirement of the design and the operation carried on as above " described (namely by stopping out, and biting in with acid). " This means affords facility of increasing the design by shadows " as much as desired."

[Printed, 3½*d.*]

A.D. 1853, November 29.—N° 2776.

HUGHES, Edward Joseph.—" An improved method of purifying and concentrating the colouring matter of madder,

" munjeet, spent madder, or any preparations thereof, however " they may be made." The Patentee's improved method " consists in the process or operation of subjecting madder, spent " madder, or munject, or any preparations thereof, or any materials containing any portion of the same, to the action of sulphuric acid, either in its purely concentrated state or slightly " diluted with water, being particularly carefully to keep the mixture cool, or, in other words, to avoid fermentation as much as " possible. The degree and power of action of the acid on the " fibrous or other substances will depend on the strength of the " acid used, and the time occupied before adding the water. This " process or principle is applicable to extracting the colouring " matter from printed goods as well as from dye stuffs."

" Disclaimer or memorandum of alteration."

" Filed 12th July, 1854."

By this Disclaimer the mixture is directed to be kept cool " in " all stages of the process."

[Printed, 4½*d*.]

A.D. 1853, December 6.—N° 2831.

BELLFORD, AUGUSTE EDOUARD LORADOUX.—(A communication.)—" Manufacture of an artificial tartaric acid, and the " application of the same to useful purposes." The Patentee claims, " firstly, converting oxalic acid into tartaric acid by " means of disoxygenation, either by means of sugar or any " other substance which has an affinity for oxygen. Secondly, " manufacturing tartaric acid by producing at once oxalic acid, " less oxygenated and in a less complete state of crystallization " than the common one, as described under the second process. " Thirdly, using as a dyeing mordant for any colors the liquors " remaining after washing the crystals obtained by either of " the above processes, and after having been suitably concentrated." " On sugar or other substance I pour a certain " quantity of nitric acid, and also some mother or residue water, " in which oxalic acid has been crystallized. As soon as the " nitrous vapours cease to be evolved, I add another quantity of " nitric acid. I then reduce this solution until, by cooling, a " crystalline mass is obtained. This mass consists of very slender " needle-like crystals, and is next washed for obtaining the tartaric acid. After washing the crystals, I add sugar which has

“ been dissolved in some of the washing liquor, the quantity of “ sugar required being proportional to the degree of acidity which “ it is desired to obtain. The siruppy or treacle-like liquid thus “ obtained is concentrated or condensed by a gentle heat, so as to “ prevent it getting too dark, and is then left to crystallize at a “ moderate temperature. The second process consists in taking “ one part weight sugar, molasses, or treacle, or of any other sub- “ stance from which oxalic acid can be made by means of nitric “ acid, and adding to this quantity, first, about one-third part “ weight of acetic acid, and then three parts weight nitric acid of “ what is called thirty-six degrees.”

“ This produces an oxalic acid containing more hydrogen than “ the ordinary oxalic acid. The solution having been crystallized, “ the crystals are washed, dissolved, and crystallized again.”

“ In order to change this oxalic acid into tartaric acid it is only “ necessary to deoxygenate it, either by means of sugar or any “ other substance which has an affinity for oxygen. I prefer, “ however, those kinds of sugar which are apt to crystallize into “ candy. I dissolve this sugar in the washing liquor, and also “ the oxalic acid obtained as before. The two solutions thus “ obtained are mixed and concentrated at a low heat, and crystals “ of tartaric acid are obtained by crystallizing the mixture at a “ low temperature.”

“The washing liquors resulting from these processes having “ been sufficiently concentrated, may also be used as a dyeing mor- “ dant for any color.”

[Printed, 3½*d.*]

A.D. 1853, December 6.—N° 2834.

GAINE, William Edward.—“An improvement in treating or “ preparing paper.” “This invention consists of immersing the “ paper, in a dry state, into or applying sulphuric acid to the “ surface or surfaces of the paper, and quickly removing the acid “ by washing in water. For this purpose I take at the rate of “ two parts by measure of sulphuric acid of commerce (sp. g. “ 1·845), and one part of water. This mixture I keep in a closed “ vessel till cold, and then, whether the paper be in sheets or a “ web, it is (supposing both sides are to be treated) to be quickly “ immersed and removed quickly from the acid, and is then to be “ immersed in water, to wash off, as perfectly as may be, the acid.

" Or, when only one surface i to be treated, the mixture of sul-" phuric acid is to be quickly spread over one surface of the paper, " or the paper may be floated on to the acid, and then the acid is " to be washed off with water." "Unsized paper, when treated " according to my invention, has a character and appearance given " to it very like parchment, whilst sized paper appears to be more " acted on in respect to the surfaces only, and not so much in the " substance of the paper. The process or treatment also produces " great toughness in the paper, admitting of much handling and " folding without cracking, and may be immersed in water with-" out injury."

[Printed, 2½*d*.]

A.D. 1853, December 6.—N° 2836.

JOHNSON, John Henry.—(A communication from Underwood, Benjamin.)—"Improvements in printing oil cloths and " other fabrics." This invention "relates to a new and im-" proved mode of producing blocks, patterns, or devices for " printing oil cloths, carpets, and other fabrics; and consists " in providing a series of suitable moveable sections of wood, " metal, or other material, and so arranging them together in " forms or cases that they shall collectively constitute blocks, " patterns, or devices from which various ornamental figures and " designs, in one or more colors, may be printed upon oil cloths, " carpets, and other fabrics; and from sections facsimile electro-" type plates or casts may also be taken in metal or other suitable " material, the said facsimile plates being also employed to print " the said ornamental figures, thus avoiding the ordinary mode of " producing said blocks, patterns, or devices, which is a slow and " costly process." "The drawing of the required pattern is placed " before the workman, just as a printer places his copy before him, " and then the design is set up in one of the cases, in much the " same manner that the printer sets up the ordinary printing " types." The sections may have "angular projections on their " under edges, and then a case is employed having triangular " grooves sunk in and running across the bottom thereof," which will prevent the possibility of the sections dropping out when inverted. "Electrotype or stereotype" facsimile plates or copies of the block so composed may be taken in metal or other material.

" When required for cylindrical printing, these plates are bent
" round a suitable cylinder."

[Printed, 5½*d.*]

A.D. 1853, December 7.—N° 2842.

KNOX, Andrew Lawson.—(This invention did not proceed, the Law Officer having refused Provisional Protection.) " Improvements in ornamenting a certain description of textile fabric." " My improvements relate to such fabrics as are 'raised,' by " carding or other similar treatment, upon one surface, and consist in producing patterns upon the other side thereof, by " printing, staining, embossing, or other such process."

[Printed, 2½*d.*]

A.D. 1853, December 14.—N° 2896.

GATTY, Frederick Albert, and KOPP, Emile.—" Improvements in printing and dyeing cotton, wool, silk, and other " fibrous substances." This invention consists in " the application of lactic acid and its salts for the purposes stated," namely, " as substitutes for tartaric, citric, and other acids, and their " neutral and acid salts."

" When we use lactic acid as a resist, it is thickened with starch " or other thickening substance, and then printed by block or " roller upon cloth, which is afterwards printed or padded with " mordants, as is well understood by calico printers. In lieu of " one gallon of lemon juice, at fifty degrees of Twaddle's hydrometer, we use one gallon of lactic acid, at about 40° T.

In some cases the lactic acid may be used, when previously saturated with an alkali. It may also be used as a " discharge ;" or for precipitating the " colouring matter of safflower from its " alkaline solution ;" also as a substitute " for tartaric acid or " cream of tartar," " in dyeing such colours as prussian blue, " scarlet, crimson, and some others, on silk or wool." In lieu of every pound " of cream of tartar, we take about one pound and a " quarter of bi-acetate of soda or potash, at about 60° T."

The lactic acid may also be used for " steam colours," and for the " preparation of white and coloured discharges upon Turkey " red and other colors."

[Printed, 2½*d.*]

A.D. 1853, December 16.—Nº 2927.

JOHNSON, John Henry.—(A communication.)—(Provisional Protection only.)—"Improvements in dyeing." "This invention consists in the employment of a new chemical compound "to be used in place of tartar, which has hitherto been considered indispensable in dyeing wools, and also merinos and "other fabrics. The new compound is composed of sulphate of "alumina, salt of soda, and sulphuric acid, and forms a most "effective mordant. For blacks the following mixture is added: "—Sulphate of copper, sulphate of iron, soda, sulphuric acid, "and grape husks."

[Printed, 2½*d.*]

A.D. 1853, December 16.—Nº 2934.

KNOX, Andrew Lawson.—"Improvements in ornamenting "certain descriptions of textile fabrics." These improvements consist, "firstly, in printing, staining, or embossing upon a fabric, "the other side of which is 'raised' by carding or other such "process. Secondly, ornamenting, as aforesaid, a fabric the "other side of which is woven with loops, after the manner of "terries, or imitations thereof, whether woven with or without "wires, and whether such loops be cut or not." The printing of the required design is performed as is "commonly practised for "textile fabrics."

[Printed, 2½*d.*]

A.D. 1853, December 19.—Nº 2948.

TRIBELHORN, John, and BOLLEY, Dr. Pompejus.—(A communication from Custer, Charles.)—"Improvements in the "process of bleaching vegetable fibrous substances." This invention consists in "the use of oxide of tin, in combination with caustic alkaline solutions, for the purposes" of bleaching. "The oxide of tin which we employ is contained "in a preparation known as 'preparing salt,' which is obtained by diluting 1 lb. of oxide of tin with water to 12° or "14° T., and adding thereto a solution of crystal of soda to the "point of saturation, the quantity of crystal of soda required "being about 1 lb. 14 *oz.* This 'preparing salt' is used in

" various proportions and degrees of strength, according to the " nature of the substance and the degree of bleaching required." The following is a process for bleaching "cotton fabrics to the " greatest perfection." "The fabrics are, 1stly, steeped in luke- " warm water for 12 hours; 2ndly, washed; 3dly, steeped in a " lixivium composed of 3 lbs. of 'preparing salt' dissolved in " one gallon of caustic soda of 68° T., and diluted to 1 T., for two " hours; 4thly, passed through the squeezers for the purpose of " expressing and collecting the lixivium; 5thly, steeped in vitriol " diluted to 1° T. half an hour; 6th, washed; 7th, steeped in a " weak solution of bleaching powder, or passed through the " bleaching liquor and laid on a heap for four hours; 8th, steeped " in vitriol diluted to 2½° T. for three hours; 9th, washed; 10th, " boiled in a solution of carbonate of soda, of from 1½° to 1¾° T., " for three hours; then washed, chemiced, and soured, and washed " again."

[Printed, 2½*d.*]

A.D. 1853, December 20.—N° 2960.

LEMAIRE, Emile Victor Felix.—"Improvements in tan- " ning." These improvements consist, first, in the "treating " skins" with "a dilute alkaline solution of potash or soda, " marking from one-fourth to one-sixth of a degree Beaumé," in place of with lime, "for the purpose of removing the hair." Second, in the following process for colouring skins:—"I pour " boiling water upon the substance known in commerce as 'bab- " 'lah' or 'neb-nab,' reduced to powder; then I decant the liquid " and dilute it with cold water until it marks one tenth of a degree " of Beaumé. In this liquid the skins are soaked for twelve hours, " then the strength of the bath is brought up to two-tenths of a " degree, and the soaking is continued for twenty-four hours " more. Lastly, the strength of the bath is brought up to four- " tenths of a degree, and at the end of twenty-four hours the " skins are withdrawn and washed with water. The color thus " obtained is fixed by a bath marking 2° Beaumé of pyrolignite of " alumina, or other suitable mordant may be employed, and when " the color is fixed the skins are well washed with water." Third, in the "arrangement of apparatus for and manner of preparing " tanning liquor" by means of passing it "through a suitable " filter." Lastly, in "the manner of tanning skins." "The

" skins are fixed upon frames of a suitable form, and are placed " vertically in the pits, and are fixed there, so as to allow the " tanning liquor to act on every part of the surface."

[Printed, 3½*d.*]

A.D. 1853, December 22.—N° 2974.

BESNARD, Louis Adolphe Ferdinand.—(Provisional Protection only.) A new system of painting, by means of lithography, without leaving a particle of paper upon the canvas." " I take a prepared canvas, thoroughly dry and smooth. I then " lay the canvass in a press and place the sheet of paper, with the " drawing upon it, on the canvass, and press it, by which means " the drawing is transferred to the canvass. I then take off the " paper. I next wash the canvass over with a solution composed " of half water and half gelatine, and dry it. The time occupied " in drying varies with the temperature. This fixes the drawing. " The proportions of the solution may be varied according to " circumstances."

[Printed, 2½*d.*]

A.D. 1853, December 24.—N° 2988.

GAULTIER, Joseph.—"An improved apparatus for washing " and bleaching." "The apparatus consists of a cylinder, divided " into a variable number of chambers subdivided into cells, the " form of which is variable, but which I prefer to be triangular. This cylinder is mounted on an axis, and moves freely " within a tub or recipient, into which I introduce the necessary " liquids for washing and bleaching. The linen or other articles " to be washed and bleached, are introduced equally into the " cells, which, being closed, the cylinder receives a slow rotatory or " alternate motion; and after a short time the linen or other " articles are perfectly washed and bleached, and partly dried " without touching them with the hand." The tub in which the cylinder is caused to revolve, and which contains the washing or bleaching liquor, is suitably supplied with cocks and pipes for the supply of steam, and for drawing off the soiled liquors. The clothes are partly dried by first drawing off the water from the tub, and then causing the cylinder to rotate at a higher speed.

[Printed, 5½*d.*]

A.D. 1853, December 28.—N° 3009.

BARNES, John.—"Improvements in dyeing and cleansing " cotton, silk, wool, and other fabrics." The nature of this invention is as follows:—"I take muriatic acid, or any of the acids " which has a stronger affinity for lime than phosphoric acid." " To this acid I add as much bone as it will take, always keeping " the bone a little in excess, which acid will be neutralized, according to circumstances, in from one to four days, but it " cannot be too long upon the bones. When neutralized, there " will be a quantity of fatty matter upon its surface much similar " to yeast, which I scum off and treat as herein-after stated. To " the neutralized acid I add as much carbonate of soda (which I " prefer), potash, or ammonia, as will simply neutralize or only " slightly tint litmus paper to the alkaline side. The mixture is " now ready for use as 'dung substitute.' Other phosphates may " be substituted for bones. The fatty matter which is formed in " the first operation is simply taken and boiled in water, when " the tallow rises to the surface, which may be taken off."

[Printed, 2½*d.*]

A.D. 1853, December 28.—N° 3012.

McNEE, Duncan, and BROADFOOT, Alexander.—"Improvements in printing with colors on cloth, which are also " applicable to printing ornamental designs on paper or other " surfaces." These improvements consist in certain "modifications, herein described, of that form of printing machine specified by Duncan McNee, as the subject of his aforesaid Patent, " and the use and employment of the same in combination with " those other appliances for convenience of manipulation in using " it as herein described." The first of those appliances consists in the application at each end of the printing table of a "roller " studded all over with fine pins, projecting radially from its surface and pointed, and the bearings of which rollers are capable " of being simultaneously elevated and depressed by a suitable " hand lever," whereby the cloth is lifted off the surface of the " table when about to be shifted after printing, and by which a " new portion is laid evenly on the table and stretched."

Certain improvements are also made in the position of the " colour box;" and also in the "construction of the same." "We

" also apply a contrivance for guiding the sieve of the machine," by means of "cords or rows of studs on its inner surface, which " fall into corresponding grooves in the stretching rollers, and " thereby prevent the sieve from shifting endlong on the rollers. " We likewise attach guide wheels on the machine, to insure its " parallel movement on the printing table in the process of printing." The printing apparatus may be received on to a "loco- " motive" or traversing turn table, and taken to any of the other tables in the shop, when required.

[Printed, 5½d.]

A.D. 1853, December 29.—N° 3020.

ROUX, CLAUDE ALPHONSE.—" Improvements in printing warps " or cut pile, and similar fabrics." These improvements consist, " firstly, in printing warp for cut pile and similar fabrics, by " means of hollow parallelopipeds or tubes, closed at the bottom " with felt or other suitable material, these tubes being filled with " the colours required, and put together, or composed so as to " form the design, an impression of which is produced by pistons " acting simultaneously on the colours in the tubes." " Secondly, " applying the jacquard machine to printing warp for cut pile " and similar fabrics." "Thirdly, printing warp for cut pile, and " similar fabrics, by means of colour troughs and perforated " parallelopipeds or pistons."

The " parallelopipeds or tubes" may be arranged in the printing frame or box, as follows:—" I take hollow or tubular parallelopi- " peds made of the proper size in any suitable metal. These " tubes are open at one end and closed at the bottom with felt or " any other suitable matter, adapted to the liquidity of the colour. " After having filled each of the tubes with the colour required, " they are put square with each other on a plane table, and fixed " in a proper framing by means of sets screws. There are pistons " which fit into the tubes, and may be acted upon by any suitable " means, such as a plate pressing equally on all pistons, so as to " squeeze the color through the felt and bottoms of the tubes. " tubes. The warp is thus printed, the surplus color being " absorbed by a flannel blanket, or other cloth under it." The printing operation may also " be performed by applying in the " following manner a jacquard machine, slightly modified. A " suitable number of parallelopipeds are attached to the end of

" rods, which are articulated to a double lever, acted upon by the
" hooks of a jacquard machine. These parallelopipeds work like
" pistons in a trough or troughs, divided into rectangular spaces
" filled with colour, and closed at the bottom in the following
" manner:—This bottom is formed of a sheet of india-rubber, or
" any other suitable material, which is perforated so as to allow a
" tight fit on the pistons." "The body of the piston is perfo-
" rated horizontally, either crosswise or otherwise, by an opening
" of the proper shape and size, which opening is less in height
" than the said elastic sheet, so as to prevent the colour running
" out. The piston receives from the jacquard machine above
" mentioned a reciprocating motion in or through the elastic
" bottom of the trough, so as to have its opening alternately
" inside and outside the trough. Whilst inside the trough its
" opening fills with color, which, when the opening is outside or
" under the trough, runs down the sides of the piston, and covers
" its rectangular face. The piston continues its course till it
" reaches the warp, which is placed under it at a convenient dis-
" tance, and thus receives the required impression."

[Printed, 7½*d.*]

A.D. 1853, December 30.—N° 3024.

LORD, James.—(This invention did not proceed, the Law Officer having refused Provisional Protection.) "Improvements
" in manufacturing, ornamenting, and applying fabrics for articles
" of clothing, and in the application of certain fabrics to such
" purposes, and in producing shapes for articles for clothing."

[Printed, 2½*d.*]

1854.

A.D. 1854, January 2.—N° 6.

FONTAINE-MOREAU, Peter Armand le Comte de.—(A communication.)—Improvements in dyeing wool.—(Provisional Protection only.) "Consisting in dyeing wool after combing,
" without being obliged to unwind the wool to put it in skeins

" before the dyeing operation, and to wind it up again on " bobbins after the dyeing, the operation of dyeing being carried " on by the usual method."

[Printed, 3*d.*]

A.D. 1854, January 5.—N° 22.

SCHISCHKAR, Edward, and CALVERT, Frederick Crace.—" Improvements in dyeing and printing textile fabrics and " yarns." This invention consists in " imparting a bright, " lustrous, or glossy appearance to the colours or fibres of such " fabrics or yarns as aforesaid, by impregnating them with sul- " phates or oxides of copper, lead, or bismuth, and decomposing " such sulphates or oxides by means of sulphuretted hydrogen." The yarns or fabrics may be impregnated by means of immersion in the suitable solution; parts of which may be afterwards protected by printing on British gum-water, or the sulphate or oxide desired may be printed, in the usual manner, on parts of the yarns or fabrics. The fabric or yarns so impregnated in whole or in part are afterwards submitted to the action of sulphuretted hydrogen and steam at a high temperature. " For this purpose " the goods may be enclosed in a steam-chest or chamber into " which is introduced high pressure steam, impregnated or mixed " with sulphuretted hydrogen, or the sulphuretted hydrogen and " steam may be introduced without first mixing them."

[Printed, 4*d.*]

A.D. 1854, January 6.—N° 31.

TAIT, Robert.—(Provisional Protection only.) " Improvements " in the manufacture or production of ornamental fabrics." These improvements relate to " such fabrics as zebras suitable for dresses " and other articles, woven by means of any suitable figure work- " ing machinery, with one side flushed or back lashed, whilst the " other or pattern side has a pattern or device thrown up upon it " by the weaving action. This latter or figured surface is after- " wards printed with the desired colour, pattern, or ornament, so " that the woven figure and the color produce the finished orna- " ment in two different and totally distinct designs."

[Printed. 3*d.*]

A.D. 1854, January 6.—N° 34.

POOLE, Moses.—(A communication.)—(Provisional Protection only.)—"Improvements in the manufacture of dextrine, glucose, and alcohol, and in employing the products of such manufacture." "The substance to be operated upon, [saw-dust, shavings, spent dye-wood, the pulp of beet root which has been used in the manufacture of sugar, potatoes, &c., rags, the straw of flax and hemp from which the fibre has been extracted, reeds, bark of trees, straw, hay, and other substances composed in great part of cellulose, and also matters containing the substance called dahline,] when in a divided state, is boiled with a solution of soda, and afterwards with hydrochloric acid, and hydrochlorite of lime, to separate the cellulose from foreign substances. The cellulose thus prepared is spread out on a stone floor, and sprinkled at intervals with concentrated sulphuric acid. After a time, this compound is mixed with water and boiled, and is then filtered and decolorized by hydrochlorite of lime." Dilute sulphuric acid at a high temperature may be used instead of concentrated sulphuric acid. "The liquid obtained is best employed to decompose a soap of lime, to obtain the free fatty acid, or it may be used in the manufacture of tartaric, citric, and other acids. The fluid is then separated from the sulphate of lime formed, and may be evaporated and crystallized, or fermented and distilled for spirit." The carbonic acid formed during the process may be employed for "aerating liquids."

[Printed, 3*d*.]

A.D. 1854, January 7.—N° 38.

NEWTON, William Edward.—(A communication.)—"Improved machinery for dyeing, washing, and bleaching fabrics." "This invention consists of a novel arrangement or construction of apparatus in which the material to be dyed is passed over the surface of a perforated hollow cylinder or tube, the dyeing or other liquor being forced into the tube and out at the perforations of the same in fine streams. The liquor will then enter the body of the cloth which is passed through the machine from one roller to another, and is caused to press tightly upon the surface of the cylinder; and by the pressure put upon the liquor it will,

" as it passes into the cloth, displace and force out the globules " of air contained in the pores of the cloth, and ensure the " perfect saturation of those parts which are exposed to the " action of the liquor." The apparatus may consist of a vat to contain the dye liquor, which by means of a pump may be forced into a cistern above. The liquor in this elevated cistern communicates by means of a pipe with the interior of the hollow perforated cylinder round which the fabric to be treated is caused to pass. The liquor descends with force and passes through the fabric.

[Printed, 6*d.*]

A.D. 1854, January 7.—N° 42.

CARALLI, NICHOLAS MICHAEL.—(Provisional Protection only.) " Improvements in the manufacture or production of ornamental " fabrics." This invention relates to the manufacture of fabrics of the zebra class. "A plain, twilled, or other fabric is used as the " material for producing this duplex pattern, no flushing or back " lashing being used. Such fabric is then printed by any of the " known means with a distinct pattern or device in the zebra or " similar style on each side, so that the piece answers the end of " showing two dissimilar styles of ornamentation."

[Printed, 3*d.*]

A.D. 1854, January 7.—N° 44.

EDWARDS, HENRY SUTHERLAND.—(A communication.)—(Provisional Protection only.)—" Improvements in preparin " textile fabrics or materials for the purpose of their better re" taining colors applied to them." " This invention consists " in the preparation of textile materials or fabrics for the better " fixing the colours to be afterwards dyed or printed upon them, " by passing such textile materials or fabrics through a bath " consisting of water, holding in solution alum, sulphate of " zinc, protochloride of tin, caustic, potash, and nitric acid, or " other chemicals possessing properties of a nature analogous " to the above." In preparing the bath the above substances are dissolved separately and then put together, and then the nitric acid is added.

[Printed, 3*d.*]

A.D. 1854, January 10.—N° 54.

BOYER, Antoine Marie Edouard, DUCROSS, Elie, and VERDEAU, Ossian.—" Improved compounds to be used in " dyeing." " The Patentees claim, the use, for the purposes of " dyeing, of, firstly, all acids united in a diluted state, with " alcaline bases, such as soda, potash, and ammonia, thus forming " substances of a novel composition;" " secondly, the use of " proto-nitrate of tin, prepared as above set forth, and generally " of all kinds of tin salts in a state of protoxydes, these salts " being already known, but not having been applied hitherto to " dyeing." " This invention consists in the preparation of a " new compound by means of which the tartar used in dyeing " may be effectually replaced." " In the alum mordant we sub- " stitute for the tartar either of the following: sulphuric, nitric, " chlorhydric, and acetic acids, either pure or in a more or less " strong solution, or else combined with alcaline bases, especially " the subcarbonate of soda." The following composition of the alum mordant is preferred; " chlorhydric acid of 14° Beaumé, " mixed with subcarbonate of soda, at the rate of eight or ten " ounces avoirdupois per pint imperial of pure chlorhydric acid " of 28° Beaumé contained in the solution, the hydrochloric or " chlorhydric acid being mixed with an equal volume of water " so as to guage about 14°. As to the quantity of this com- " pound to be used in the dyeing bath, it has to be determined " by the experience of the dyer, the same as for the tartar."

The " proto nitrate of tin " is formed thus; nitric acid is diluted to 13° degrees and allowed to stand for some hours " The tin has to be added in a state of great division, and to be " shaken whilst the dissolving process goes on," and in the proportion " of one-twentieth pound avoirdupois of tin per pound " of pure nitric acid." " Similar results can be obtained by " using the proto and the deuto nitrate of tin or other solutions " of tin in nitric acid, chloric acids, and aquafortis." All these substances may be used in the state of salts.

[Printed, 3*d*.]

A.D. 1854, January 11.—N° 69.

LISTER, Ralph.—" Improvements in distilling apparatus " such " distilling or operating chambers are made with an encircling

" worm or spiral channel in their sides [and bottom], this channel " or passage being worked or formed in the actual material of " the still sides [and bottom]. By the adoption of this system " of construction, steam or other artificial heat may be passed " through the encircling thoroughfare to afford the necessary " heating power for the operations of the still. The channel or " encircling passage may be made of various transverse sections, " shapes, and materials, and the stills so made are suitable for " many varieties of distillation; but I intend more especially " to employ them in the manufacture of what is commercially " known as 'bleaching powder.'"

[Printed, 5*d.*]

A.D. 1854, January 12.—N° 82.

HENLEY, THOMAS FREDERICK.—(Provisional Protection only.) " Improvements in the preparation of certain colouring matters." " The raw materials which I employ are stick lac, or other varieties " of lac, and the awl root, both of which materials may be procured " in British India. I prepare a red colouring material from the lac " by digesting it in an aqueous solution of ammonia, from which " the ammonia or the greater part thereof is afterwards distilled " off or evaporated, and leaves the colouring material in solution " in the water. This solution is then employed in dyeing or " printing with suitable mordant; or it may be evaporated to " dryness, and the dry colouring material may be dissolved again " when required for use. The awl root is dried and reduced to " powder, and then treated with sulphuric acid or with muriatic " acid, either in a liquid state or in the state of vapour. The acid " is afterwards removed by washing with water, leaving the " colouring materials, mixed with other matters which I call " awline. The awline may be employed for dyeing in a similar " manner to madder or garancine. Different shades of red and " orange may be obtained from the different varieties of awl root." By varying the mordants and dyeing with the lac preparation or awline separately or together various shades may be obtained.

[Printed, 3*d.*]

A.D. 1854, January 13.—N° 91.

WILKINSON, JOHN.—(Provisional Protection only.) " Improvements in the manufacture of dies for producing printing

" surfaces for calico printers, applicable also to embossing." "The " surface (of metal) upon which the design is to be produced is " coated with the ordinary etching wax, and a part of the pattern " etched thereon. By passing the tracer of the pentograph over the " artist's design, the outline thus produced is bitten in in the usual " manner, and a print or tracing obtained therefrom, which is now " transferred to the tracing point of the pentograph, and the etched " plate with another etching ground returned to its former place." " Secondly, as regards a method of making the roller dies or tools " for impressing printing surfaces. Having obtained the proper " length of design to correspond to the periphery of the roller " to be impressed, I plane away or otherwise remove the metal " surface at each end of the said length of design, so as to leave " it raised above the general surface, by which means the plain " part is prevented from pressing out the pattern imparted to " the roller, tool, or die."

[Printed, 3*d.*]

A.D. 1854, January 25.—N° 190.

REID, ARCHIBALD LOCKHART.—" Improvements in printing " textile fabrics and other surfaces." These improvements relate, " first, to the general arrangement and construction of machinery " or apparatus to be employed in printing textile fabrics and other " surfaces." " Second, to the application and use in zincographic " printing machines of a roller or cylinder of zinc or composition " metal to act as the printing surface." "Third, the system or " mode of passing fabrics through zincographic and lithographic " printing machines, without subjecting them to any tractive " strain by driving the delivery counter pressure (the bowl) and " take up rollers by means of a belt or toothed gearing." " Fourth, the application and use of lithographic or zincographic " rollers or cylinders for printing textile fabrics." "Fifth, the " system or mode of printing according to the lithographic or " zincographic processes, wherein the printing rollers or cylinders " are made to traverse or roll over the surface to be printed, as " stretched on a flat table beneath." " Sixth, the application and " use of isinglass or composition thereof for the production of " printing surfaces." These improvements have reference to a cylinder printing machine in which the copper roller is replaced by a zinc or stone roller, or by a cylinder made of " isinglass or other

" similar matter or composition." When this printing apparatus is applied to printing on a flat surface it is supported on a carriage which is caused to traverse over the fabric; or the flat surface may be caused to traverse under the printing apparatus.

[Printed, 10*d.*]

A.D. 1854, January 31.—N° 241.

MEEUS, Pierre Joseph.—" Improvements in producing " metallic surfaces." The Patentee claims "the guilding and " coating with metals, by means of heat and pressure, articles " composed of or coated with gums, gutta percha, caoutchouc, " or mixtures or combinations of the same or substances analogous thereto." "And also the several methods of imitating " embroidery and embossed or figured goods of all descriptions " on yielding fabrics and bodies, and the production of ribbons, " trimmings, braid, gold or silver lace, fringes and articles of the " like description in gold, silver, platinum, or other metals, either " plain or coloured, tinted or shaded, so as to resemble mother-" of-pearl or otherwise." This invention consists in directly gild-" ing or coating with metal, gums, gutta percha, &c., rendered " adhesive by heat, which guilding or coating is effected on or by " means of such gums, and may be applied while they are being " moulded, rolled or flattened." Such gilded gums, gutta percha, &c., may be cut into figures and caused to adhere to fabrics producing "imitations of embroidery in gold, silver, or other " metals."

[Printed, 4*d.*]

A.D. 1854, February 2.—N° 265.

GLASSFORD, John Hamilton.—" Improvements in lithographic and zincographic printing." These improvements relate, " first, to a general arrangement and construction of lithographic " and zincographic printing apparatus." " Second, the application " and use in lithographic and zincographic printing machines of " a self-acting damper or moistener, to which a curvilinear motion " is given by causing the points of suspension of the damper to " rotate horizontally." "Third, the system or mode of fixing " the inking slab and stone or plate on the same carriage, or in " such connection with each other that the traverse movement

" brings them alternately under a pair of reciprocating rollers,
" which take up the ink from the slab, and apply it to the
" stone or plate." "Fourth, the system or mode of bevelling
" the front edge of the stone or plate to enable it to enter
" easily under the scraper, thereby avoiding the necessity of
" raising the scraper on the entrance of the stone beneath it."
" Fifth, the system or mode of causing the tympan to be lifted
" off the stone or plate on its recession from under the scraper,
" by means of a guide plate or plates acting on a pulley or
" pulleys or other guide details carried by the tympan frame."
" Sixth, the system or mode of and the mechanical contrivance
" for taking up and measuring the fabric or material operated
" upon." "Seventh, the system or mode of fixing or jointing
" the tympan frame of lithographic and zincographic printing
" machines to a traversing carriage or frame distinct and sepa-
" rate from the carriage or frame upon which the stone or plate
" is placed, so that the latter can be traversed clear away from
" the tympan frame when required." "Eighth, the application
" and use in lithographic and zincographic printing machines
" of an oscillating scraper, in combination with self-acting me-
" chanism for lifting and depressing the same."

By these mechanical arrangements "the lithographic and
" zincographic printing processes as ordinarily adopted for print-
" ing on paper, and also on textile fabrics for the embroiderer's
" purposes, are made self-acting, and more rapid and efficient
" than heretofore."

[Printed, 1*s*. 5*d*.]

A.D. 1854, February 6.—N° 287.

MEERE, Auguste Louis Nicolas Comte Vander.—"The
" manufacture of artificial whalebone, or a substance capable
" of being employed as a substitute for whalebone and tortoise-
" shell." This invention relates chiefly to improvements in treating horn to render "it flexible and elastic like ordinary
" whalebone." This may be effected by steeping for several days the horn in water containing five per cent. of "glycerine," or in water alone which has "become putrid and ammoniacal," and afterwards in a bath composed of three quarts of nitric acid of commerce, and two quarts of pyroligneous acid of commerce (or vinegar), and twelve pounds and a half of tannin, and

five pounds of bitartrate of potash (or white wine), and five pounds of sulphate of zinc, dissolved and mixed with twenty-" five gallons of water;" "or, in lieu of this bath, the horn may " be immersed for several days in a hot or cold bath containing " animal matter, such as a solution of gelatine or glue, or the " water in which tripe has been boiled, &c." Horn so treated is rendered pliable and ductile and may by pressure and heat be formed into various useful shapes. "It may be stained black by " means of a stain prepared by boiling together in water log-" wood, fustic, and sulphate of iron, and adding eight or ten " drops of nitric acid to twenty gallons of the liquid;" "and " various other stains may be employed, as in staining ordinary " horn and ivory and other substances. It may be stained like " ordinary horn to resemble tortoiseshell." "The horn is dipped " into the stain for a few seconds or longer, and is then dried and " polished, if required."

[Printed, 4*d*.]

A.D. 1854, February 6.—N° 289.

GRAHAM, James Balie.—"Improvements in the production " of printing surfaces." These improvements relate, "first, to " the general arrangement and construction of apparatus for pro-" ducing printing surfaces." "Second, to the producing printing " surfaces by depressing portions of a compound surface or mass " made up of pins, type, or pieces of metal, or other suitable " material." Third, to producing printing surfaces by moulding " gutta percha or other suitable material upon a compound sur-" face made up of pins, type, or pieces of metal, or other suitable " material, portions of such surface having been depressed to " correspond to the required pattern." The pins used for the above purpose may be made of any form, and of suitable material, and about an inch long. Suitable means are adopted to secure the pins in a frame, and to depress with a picker "those corresponding " to such parts of the pattern as are intended to print, being " careful to press these pins quite back to the surface of the " plate" placed behind to receive them in a uniform manner. " The gutta percha (in a soft heated state) is then forced well " into the indentations formed by the depression of the pins by " pressure, a block of wood being applied to the back of the gutta

" percha, to form with it a solid printing block, similar to those " in common use by block printers;" "or, if it is required to " make a block to print a "ground," then a cast is taken off the " side opposite to that which will give a block for printing the " pattern."

[Printed, 7*d*.]

A.D. 1854, February 6.—N° 290.

DUNCAN, Andrew.—" Improvements in bleaching." This invention consists "in using the bleaching liquid in a heated " state." The aqueous solution of chloride of lime or other substance employed as the bleaching agent is artifically heated [in suitable vessels] up to a temperature of 110° of Fahrenheit's thermometer, or to a temperature not far departing from this point, the exact temperature being somewhat variable with the nature of the fabrics under treatment. "The heated solution is then ap- " plied to the materials in the mixing engine, or other suitable " vessel." Paper, textile fabrics, or other articles may be so treated.

[Printed, 7*d*.]

A.D. 1854, February 7.—N° 303.

NEWTON, Alfred Vincent.—(A communication from Lea, Joseph, and Roth, Augustus.)—" Improvements in bleaching " textile fabrics." "The first part of these improvements consists " in so arranging a series of rollers in a vat that a considerable " number [the drawing shows five] of continuous strips or sheets " of cotton or linen fabric [pieces in the open state] may be simul- " taneously drawn through the vat, the object being so to present " the fabric to the bleaching or boiling solutions that it may be " thoroughly acted upon by them, and that a great saving in " time and expense over the ordinary method may be attained." If five pieces be passed at one time through this apparatus, the rollers will require to be arranged in series of ten rollers perpendicular to each other, and there may be ten of such series. "They " are of different diameters, the upper [and lower] row of rollers " being above one foot in diameter," and the other rows decreasing in diameter, from top and bottom, to four inches. The pieces are caused to pass over and under these graduated rollers in such a manner that each piece passes over rollers, the circumference of which together is equal to the circumference of any of the other pairs of rollers occupied by the other pieces, and thereby all the pieces travel through the vat at one speed, and are at the same time prevented from touching each other. "A single pair of " drawing and squeezing rollers draw the whole five layers through " the vat simultaneously, and squeeze them at one and the same " time." "When it is desired to expose the fabrics to the action " of the atmosphere," the frame which carries the upper series of rollers may be elevated to some height out of the liquor. This invention relates, secondly, to an apparatus for washing woven " fabrics in continuous sheets as part of the bleaching process." The five layers of cloth are drawn into another vat or cistern by means of a pair of squeezing rollers, and there separated the one from the other by means of passing each separate piece under a separate roller. Between the separated pieces are placed, at the level of the water, a "series of small dashers, composed of a " metallic shaft with wings or vanes made of iron or copper," driven with great rapidity. "The rapid revolution of the dasher " wheels drives the water through the single thickness of fabric, " and thus rapidly and effectually cleanses it."

This invention relates, thirdly, to "chemical treatment," and consists in applying the above apparatus for the passage of the goods through the various bleaching agents required.

[Printed, 10*d*.]

A.D. 1854, February 9.—N° 310.

DALTON, JOHN.—" Improvements in the construction of bowls " or cylinders employed in printing and other processes, and " which improvements may also be adapted to other mechanical " appliances." These improvements consist "in the construction " of bowls, cylinders, or other cylindrical mechanical appliances " of segments of wood having the fibres or grain of the several " segments placed vertically to the centre." "Pieces of wood " are first cut from the solid block into segments of a circle of " the required size, and these several segments are afterwards " arranged and united together with gutta-percha, shellac, or " other substance, so as to form a solid cylindrical body, each " segment being so cut and placed that the fibre or grain of the " wood may stand vertically in relation to the centre. An iron

“ shaft is fixed through the centre, and the surface of the bowl “ turned true and even in a lathe.” Bowls and cylinders made on this principle are applicable to bleaching, squeezing, mangling, and also as a substitute for the iron bowl of a printing machine, for surface rollers, &c. The wood sections may be secured by dovetailed longitudinal slots in the centre or drum which carries them, and by wedges.

[Printed, 7*d.*]

A.D. 1854, February 9.—N° 316.

BOILEAU, Eugene.—“ Improvements in producing raised “ printing surfaces.” “ The object of this invention is to produce “ plain and colored ornamental designs, chiefly of the kind “ known as checks and plaids, or tartans, upon paper, calico, oil “ and moleskin cloths, and other materials, by the use of types, “ which will admit of being arranged in various ways to produce “ different patterns, but possessing the same general character.” “ In order to produce a raised surface from which to print a plaid “ pattern in one colour I form a type (in the way ordinarily prac- “ ticed by type founders) containing the outer lines of two sides “ of a square, and all the inner lines included in the pattern, and “ by means of repeats of this type I am enabled to produce a “ raised printing surface, the pattern of which may be modified “ according to the taste of the printer by varying the mode of “ arranging the types. To print the same pattern of plaid in “ colours I form types with a given portion of the pattern on “ their surface and other types with another given portion, and “ so on, according to the elaborateness of the pattern and the “ number of colours designed to be reproduced, making the set of “ types represent the complete pattern; and having set up these “ several kinds of type in different chases, but according to one “ given arrangement, I work off so much of the pattern as each “ contains in different colours on the same material, whereby I “ reproduce the complete pattern in various colours, as desired.” “ In color printing a more brilliant effect than heretofore may be “ thus obtained, inasmuch as the colors may be applied without “ crossing each other; and thus each color will throughout its “ surface retain its primitive appearance.”

[Printed, 1*s.* 2*d.*]

A.D. 1854, February 13.—N° 348.

BROWN, Samuel Russell.—(Provisional Protection only.) " Improvements in printing textile fabrics and other surfaces." " The pattern or device is primarily produced in 'intaglio,' in " wood or other material" "by suitable contrivance for producing " sunk figures. This forms the mould or matrix, from which a " cast is taken in type metal, gutta percha, or other material, " the casting or counterpart so produced being in the form of a " flat plate, with the pattern in the relief upon it. These relief " or surface printing plates are then bent round a roller or " curved surface, and attached thereto to produce the relief print- " ing roller or cylinder. The muslin or other goods are then " printed by such roller according to any of the existing sys- " tems of roller or cylinder printing." Such printing being especially applicable for printing outlines on muslins to be afterwards sewed or embroidered.

[Printed, 3*d*.]

A.D. 1854, February 13.—N° 350.

GREENWOOD, John.—(Provisional Protection only). "Im- " provements in dyeing textile materials or fabrics." " My inven- " tion consists in the employment, application, or use of the " mucilaginous matter of linseed or lintseed, that is, the seed of " the common flax, along with the coloring matter. The muci- " lage mixed and used with the coloring matter has the effect of " adding brilliancy to the dye, and heightening the color, more " especially in madder dyeing."

[Printed, 3*d*.]

A.D. 1854, February 18.—N° 392.

WELLS, Benjamin Weston.—" Improvements in printing " floor and other cloths." These improvements consist " in im- " parting pressure to the printed pattern of floor and other cloths, " while the colors are in a moist state, by means of a block or " blocks containing a counterpart in colours of the printed pat- " tern, whereby solid work is obtained, and the necessity for a " double set of pattern blocks, and, consequently, double print- " ing from the pattern blocks is avoided." "In order to cover

" the ground, and at the same time make good any deficiencies " which may chance to exist in the imprint on the cloth, I press " down upon the pad which contains the imprint of the perfect " design a block, the under surface of which is ribbed with parallel " lines, and the inverted impress of the pattern thus obtained on " the ribbed surface of the block I bring into contact with the " pattern on the cloth, and by heavy blows or pressure applied to " the back of the block I spread the moist colors on the cloth, and " thereby completely hide the ground, and at the same time " remedy any deficiencies which may have occurred in the transfer " of the colours from the pattern blocks to the cloth." " A more " smooth and perfect impression may be obtained by the use of " a second pressing block the counterpart of the first; " " or, two " pressing blocks may be employed, the straight or wavy lines or " dots on the face of one of which will fall between or just over " the edges of those on the other."

[Printed, 3*d*.]

A.D. 1854, February 18.—N° 393.

LOYSEL, Edward.—" Improvements in apparatus for obtain- " ing infusions or extracts from various substances." These improvements consist in the construction of " an apparatus for " obtaining infusions or extracts, so that the water or other liquid " employed may, by hydrostatic pressure, be caused first to pass " upwards through the pulverized material intended to be operated " upon, and after maceration be caused to descend through the " material, and thus extract or carry off the soluble or extractive " matters contained in it." This apparatus is chiefly applicable to making " infusions of coffee, tea, &c.," but may also be employed for " extracting colouring matters from dye woods, and " other purposes." In the specification and accompanying drawings are described and shown several modifications of apparatus calculated to carry out the principle of this invention, which is, first, to pass the extracting liquor hot or cold upwards through the coffee or other substance, by means of the pressure of a column of the liquid, and afterwards to allow it to repass downwards, by means of its own gravity, again through the substance to be acted on.

[Printed, 2*s*. 4*d*.]

A.D. 1854, February 20.—N° 406.

MELVILLE, WILLIAM.—(Provisional Protection only.) "Im-" provements in printing textile fabrics and other surfaces." This invention relates to various "arrangements of machinery or " means to be used for printing or ornamenting textile fabrics of " various kinds, and particularly shawls and carpets, in a more " effective and economical manner than hitherto." Portions of the printing table, and of the cylinder printing machine bowl may be depressed or cut away, so that the printing roller will pass over and not print these depressed portions. These depressions may be "angle or meter" cuts or "circumferential " grooves" into which the fabric is depressed, whereby at the same time more than one piece may be printed. The fabric may also be printed when enclosed between "two wire gauze frames," or between "two endless belts of wire gauze." "Ornamental " fabrics are also printed or figured in gold, &c.," by first printing on a "suitable adhesive matter," and then printing the "pigment on over this by another roller or block."

[Printed 3*d*.]

A.D. 1854, February 25.—N° 462.

KEENAN, JAMES.—(A communication.)—"Improvements in forming blocks or surfaces for printing." These improvements consist "in producing printing surfaces by cutting out the figure or " design from a plate or plates of prepared felt, wood, or other suitable substance of the thickness of the required relief, and mounting the same by means of glue, cement, or other suitable means; " and also the method of preparing felt, by which the required properties for block and other kinds of printing is imparted thereto." The felt is prepared by saturating it with a solution of " gum shellac and alcohol," which should be pressed in by a hot iron. After this the felt should be subjected to heavy pressure in a press, then powdered with " rosin or pitch on the surface which " is to receive the color, and sprinkled with turpentine, and then " a hot iron is passed over it, to smooth down this surface, and " cause it to penetrate as much as possible."

[Printed, 6*d*.]

A.D. 1854, February 25.—N° 468.

STAITE, William Edwards.—" Improvements in the treat-" ment and preparation of madder and munjeet for dyeing and " printing." "My improvements consist, firstly, in submitting " ground madder (and munjeet of the first quality) to the follow-" ing process, for the purpose of preparing the same for dyeing " and printing :"—" I take for example, say, by weight one hun-" dred parts of the said madder (or munjeet), and I place the " same in a bath, consisting of water and acetic acid (preferring " distilled water) in the proportion of 1,600 parts of the water to " 7 parts of acetic acid of the strength of ·50 by ordinary aceto-" meter; but I do not confine myself to these exact proportions. " The madder so treated is allowed to remain in the acidulated liquor " bath until the liquor in the first place acquires a gummy con-" sistency, and subsequently becomes clear and comparatively " colourless. This will generally occur in ordinary temperatures " after the madder has been in process, say from 30 to 40 hours. " The madder is then taken from the bath, and well washed in " cold water, after which it is placed in a filter and allowed to " drain. It is subsequently dried and ground into a fine powder. " In order to accelerate the process, I use in the washing of the " madder a weak alkaline solution, preferring ammonia.

" Secondly my improvements have reference to the treatment " and preparation of new ground madder, or madder which, tech-" nically speaking has not been 'aged' (and also to munjeet of " inferior quality). The process which I adopt in treating such " madder (or munjeet) is as follows:—I place, say 100 parts of " the madder in an ammoniacal bath consisting of, say 7 parts of " ammonia of specific gravity of ·880, and 1,600 parts of water; " but I do not confine myself to these exact proportions, for the " reasons before stated. The madder is allowed to remain in the " said bath, say for 24 hours, or until such matters as are soluble " at the ordinary temperature of cold water are dissolved out of " the madder. The madder is then taken from the bath, and " treated as described in the first part of this my specification."

[Printed, 3*d*.]

A.D. 1854, March 4.—N° 529.

ABATE, Felix.—" Improvements in printing on and ornament-ing surfaces." "The object of this invention is to make imita-

" tions or representations of natural and artificial objects, by " printing with the objects themselves upon any suitable sub- " stance." The surface of the "printing object" may be wetted with an "acid" or "solution of an acid salt," or with any of those substances called "mordants or discharges and resists," and then printed on the fabrics, leather, &c., and dyed; or the object to print may be wetted with a "solution of a salt of copper, or " antimony, or with any of those fluid compositions which are " used to give a bronze color to metals," and then printed on metallic "tin, tin plate, zinc, copper, &c." The surface so printed may be protected by a coating of any "soluble, transparent, and " adhesive composition." "Non-absorbent surfaces" may be made suitable for printing, by "coating them with any vegetable " or animal matter in fine powder, or in flock," and being made to adhere by means of any glue.

Imitations of marble may be printed by means of a "composi- " tion" formed by "mixing together pell mell crystals of different " metallic and earthy salts, acids, and alkalies, such as, for in- " stance, crystals of sulphate of iron, sulphate of copper, hydro- " chlorate of tin, tartaric acid, carbonate of soda, &c." These are cemented in "one mass by any salt melted in its water of " crystallization, such as alum, sal ammoniac, &c." A flat or cylindrical block may be made from this composition, from which impressions may be taken "on any absorbent surface by wetting " the block with water." Or the composition block may be made by "mixing together different metallic ochre, or earthy colours each of them made into a paste by the admixture of a suitable " quantity of gum water, or of linseed oil thickened with melted " rosin." On taking an impression with this block its surface may be wetted with "water or essential oil of turpentine," as the case may be.

Imitations of "figured or damasked satin, or of any fancy " paper" may be produced thus: "I take a sheet of tin-foil " and I lay it upon a piece of the silk stuff, or embossed paper or " calico, which I intend to imitate, placing both between two " pieces of vulcanized india-rubber. Then I press the whole, " which causes the figuring of the cloth, &c., to be impressed " upon the metallic sheet. Then I color this sheet of any required " colour, using for such purpose colors extracted from dyeing " stuffs, and thickened."

"Hard or carved surfaces" may be printed on, by first making an impression upon "a sheet of vulcanized india-rubber," and then causing it to be transferred to the carved surface by means of pressure applied to it from a "cushion made of vulcanized " india-rubber, or gutta percha filled with water."

[Printed, 4*d.*]

A.D. 1854, March 6.—No. 539.

RONALD, JOHN.—(Provisional Protection only.) "Improve-" ments in printing yarns and threads." "I impress the color " upon the yarn or thread by means of a series of parallel rollers " brought into contact with the yarn wound upon a drum; these " rollers extend from end to end of the drum, each roller being " partially immersed in colour contained in a olour trough, the " rollers corresponding in number with the number of colours " required for a pattern."

[Printed, 3*d.*]

A.D. 1854, March 8.—N° 556.

DEVINCENZI, GUISEPPE.—(Provisional Protection only.) " An improvement in producing ornamented and figured sur-" faces and surfaces for printing from." " I place the object " to be reproduced upon a hard surface, and place thereon a " copper plate which has been previously softened by being " annealed or otherwise. I then submit the whole to strong " pressure, when the impression of the object will be pro-" duced upon the softened plate, which during the process " becomes again hard, and is in a fit state for printing from; or " it may be employed as a matrix from which to produce impres-" sions or embossing in softened copper and in other metals and " substances. The plate so reproduced from the first copper " plates may also be employed to reproduce a fac-simile of the " original plate by a repetition of the first process without, how-" ever, the intervention of any substance between the metals. " Again, the softened plate with the design or object produced " thereon may itself be employed as an ornamented metal surface."

[Printed, 3*d.*]

A.D. 1854, March 10.—N° 581.

NEWTON, Alfred Vincent.—(A communication.)—(Provisional Protection only.) "Improvements in the manufacture "of raised printing surfaces." "The figures required are "cut out in whole or in sections by means of a saw or other "instrument from thin sheets of felt, prepared as will be pre"sently explained, or they are formed of wood or other suitable "substance of the thickness of the intended or required relief, and "they are then secured by glue, cement, or other suitable means "to the face of the printing block or cylinder. In preparing the "felt to be used for block printing and other like purposes, it is "saturated with a solution of gum shellac in alcohol, and then "compressed, and finally the printing surface is coated with rosin, "or pitch and turpentine, over which a hot iron is passed to "smooth the surface and cause the overlaying substances to pene"trate the material."

[Printed, 3*d.*]

A.D. 1854, March 13.—N° 602.

HAEFFELY, Edward.—(Provisional Protection only.) "An "improved mordant to be used in printing and dyeing textile "materials and fabrics, applicable also to the process of bleach"ing." "This invention consists in the use of tungstate of "soda, of potash, or of ammonia, to be substituted for stannate "of soda, or other mordants, or to be used in combination there"with; and also in the use of the aforesaid tungstates in place "of the stannates now employed in the process of bleaching."

[Printed, 3*d.*]

A.D. 1854, March 13.—N° 603.

HAEFFELY, Edward.—"Improvements in the manufacture of "stannates of soda, potash, and ammonia." The Patentee claims "the production of stannates of soda, potash, & ammonia, ' by forming stannic acid by the oxydation of metallic tin in an "alkaline solution by the agency of an oxide of lead, or any other "oxide having a less affinity for oxygen than tin." The "stan"nate of soda" may be prepared "by introducing into a metal "pan litharge or red lead (or hydrate of peroxide of iron, hy-

“ drate of peroxide of manganese, manganate of soda, indigo, “ and others) and a solution of caustic soda of commerce con- “ taining about twenty-two per cent. of alkali; and reduced by “ the addition of water or the washings hereafter named, if “ required;” a plombate or plombite of the alkali is thus formed, “ heat being applied for the purpose of hastening the operation. “ Feathered metallic tin is then suspended in a bag or thrown “ into the mixture, when immediately the oxygen from the “ alkaline solution of the oxyde of lead passes to the metallic tin, “ forming stannic acid, which unites with the alkali, whilst “ metallic lead in a spongy state is precipitated. The propor- “ tions I use are sixteen pounds of tin, forty-five pounds caustic “ soda at 70° Twaddle, from 70 to 80 of litharge (or 54 red “ lead). When the tin has entirely disappeared, which will be “ after several hours boiling, say four to five, depending, how- “ ever, upon the granulated state of the tin, the fire is with- “ drawn, and the precipitate allowed to settle. The clear solution “ of stannate of soda is then decanted,” and is now ready for use. The precipitated lead (or other metal) may be speedily reoxidised by a heat approaching to redness with exposure to the air, and be used again for another operation.

[Printed, 3*d.*]

A.D. 1854, March 16.—N° 628.

POISSON, CYPRIEN, and MARTIN, LOUIS JACQUES.—(Partly a communication.)—(Provisional Protection only.) “ Improve- “ ments in printing fabrics.” The object of this invention is to “ fix colours on fabrics.”

“ 1st. Preparation of the fabrics.—1°, in a pint and three- “ quarters (un litre) of water mixed with a pint and three-quarters “ of liquid ammonia or volatile alkali, we steep the fabrics for ten “ minutes, and then dry them, after which we imprint with “ colour, as follows:”—

“ 2d. Preparation of the said colour.—2°, we take five parts of “ baked linseed oil, and one part of liquid ammonia; we saponify “ the five parts of oil with the one part of ammonia; we grind “ the colour, and then imprint the fabrics, either in the manner “ used by lithographers or with the ordinary machines of cotton “ printers.”

"3d. When the fabrics have been prepared and printed as above " directed, two days after the printing we make two separate " baths, one composed of four ounces and a half (125 grammes) " of rock alum dissolved in a pint and three-quarters of water, " and the other composed of a pint and three-quarters of liquid " ammonia mixed in a pint and three-quarters of water."

"4°. The fabrics when printed are passed through the alum bath, " and immediately afterwards through the alkali bath, in order to " obtain a precipitate of alumina upon the fabrics, which perfectly " fixes the colour."

[Printed, 3*d*.]

AD. 1854, March 20.—N° 662.

PERKINS, Joseph.—(Provisional Protection only.) "Improvements in working metals, especially adapted for producing sur" faces for blocks for printing calicos, silks, paper, and other " fabrics." "I take a plate of (tinned) brass or other suitable " metal, and delineate thereon the pattern or figures required; " then I take strips of brass and form or work them into the " 'outline' as far as possible, the one edge of the same being " the surface. I now take for the parts not connected with " the outline pieces of brass, and between them I place pieces " of zinc, and fix them in the proper position, and so as to let " them or some of them abut against the other parts of the " pattern." Heat is then applied to the plate till the design adheres to the solder; the pattern is then "cleaned off," and the zinc dissolved away by means of a bath of "acid or other " solvent." "This plate being applied to blocks or cylinders may " then be printed from." Modifications of this principle may be applied for discharging "bandannas," and in preparing "open " work articles."

[Printed, 3*d*.]

A.D. 1854, March 23.—N° 682.

COËZ, Emmanuel Désiré.—(Provisional Protection only.) " Improvements in the preparation of certain substances for the " purpose of printing and dyeing fibrous materials and fabrics." This invention consists "in forming the soluble lacs from " dyewoods, as Cuba and Campeachy wood or fustic, or from

" cochineal, by treating the extracts of the colouring matter " of these substances with a mixture of soda and alumina, " which is known by the name of jelly of alumina."

[Printed, 3*d*.]

A.D. 1854, March 23.—N° 686.

POOLE, Moses.—(A communication.)—(Provisional Protection only.) " Improvements in preventing alterations of bank notes, " cheques, and other documents." " The invention consists of " puncturing or displacing portions of the face of a bank note, " cheque, or other document, in such manner that the vacancies " or perforations pricked or cut through shall be made to represent, by numerals, figures, or letters, or other intelligible " signs, the denomination or amount of the note, cheque, or " other document, or the name or part of the name of the bank " or promissor, or any other essential part of the note, cheque, " or other document, by which means, unless the signification of " the punctured, cut out, or perforated parts of the document, " and the written or printed parts thereof agreed, it would at " once be ascertained that the document was a fraudulent one; " and it is the combining devices produced by puncturing or " cutting away of parts of a document with printing and writing " which constitutes the peculiarity of the invention."

[Printed, 3*d*.]

A.D. 1854, March 27.—N° 708.

PHILLIPS, Frederick.—" Improvements in machinery or " apparatus for cutting, grating, or preparing vegetable substances." " This invention relates to certain improvements in " the construction of turnip or other root cutters or graters, " which improvements are also applicable for the cutting or " grating of dye woods, and for other purposes, and consists in " the employing of a series of circular serrated cutters arranged " side by side upon a cutter shaft, which may be driven by a " winch handle or gearing, as required. These cutters are kept " separated by means of intervening discs or washers, and the " whole are held together by bolts and nuts. An adjustable curved " grating or guard is fitted to the machine, and the teeth of the

" cutters are made to project slightly beyond it, so that the depth " of the cut may be regulated according to the size of cut required. " In front of these revolving cutters is placed an inclined feeding " table, composed of a series of sloping bars, with openings " between to allow the dirt or earthy matter adhering to the " tools to escape freely without intermixing with the root gratings or parings. A lateral vibratory motion is imparted to " this feeding table during the cutting action by means of cams " on the cutter shaft, or by any other suitable mechanical arrangement, by which means a fresh portion of the root is continually " presented to the action of the cutters. The machine may be " made double, if required, two sets of cutters being employed " with the shafts geared together, the roots being fed into the " machine between two sets of cutters. There may be used, in " place of serrated disc cutters, a series of curved claws or scrapers " or chisel-pointed knives, fitted into the periphery of a drum " or cylinder, and working through a guard, as herein-before " described; or the claws or knives may be fitted into the side or " end of a disc or cylinder, in place of in the periphery, in which " case an indented or slotted guard plate would be employed. In " conjunction with the last-mentioned arrangements I use a " circular-edged scraper, for the purpose of completing the cutting " or grating operations. It is obvious that the saws or cutters " herein-before mentioned may be made equally applicable when " cutting longitudinally, in place of with circular saws, which " I have described."

[Printed, 1*s.* 5*d.*]

A.D. 1854, March 28.—N° 714.

HODGKINSON, Alfred.—" Improvements in bleaching linen " fabrics." These improvements consist in passing the pieces of linen through " milk of lime " contained in a suitable apparatus for the purpose, and then boiling them " in a close-covered pot " for " about fourteen hours," after which they are to be soured with muriatic acid at 2° T. for several hours. " The second part of the " said bleaching process being affected according to the invention " of James Higgins' Patent, dated 1852, June 24.

[Printed, 3*d.*]

A.D. 1854, March 28.—N° 718.

CHAMBON, Frédéric, and MEYNIAC, Alfred.—(Provisional Protection only.) " Improvements in bleaching or scour- " ing silk." This invention consists in " the use of tartarlees " or scobs (cendres gravelées) dissolved in water, which is boiled " and then allowed to settle. The clear liquid is combined with " urine, and the compound is warmed. The silk is immersed " in this bath for some hours, then rinsed and steamed, and then " subjected to the action of a bath of dilute sulphuric acid, to " which some tartarlees or scobs and crystals of soda are added."

[Printed, 3*d*.]

A.D. 1854, April 1.—N° 752.

JOHNSON, John Henry.—(A communication.)—" Improve- " ments in printing fabrics, and in the machinery or apparatus " employed therein." These improvements consist " in the application and use of caoutchouc or gutta percha, rendered hard, as " described, and either alone or in combination with each other, " or of compounds wherein these materials are the principal " ingredients for the production of printing surfaces." " A " cylinder of wood or metal is covered with a coat of prepared " caoutchouc in a soft state, and then submitted to a high " degree of heat, as described by Charles Goodyear in his several " Patents for the manufacture of a hard material from caoutchouc. " These cylinders having been thus hardened are engraved in " the same manner as ordinary copper printing cylinders or " rollers, either in intaglio or in relief."

[Printed, 3*d*.]

A.D. 1854, April 1.—N° 756.

WILSON, George Ferguson, and WALLS, William.—" An " improvement in dyeing Turkey red." " This invention consists " of employing oleic acid in the process of dyeing Turkey red, " in place of the oils heretofore used; and we prefer to employ " for this purpose oleic acid which has been distilled, and as pure " as may be." For this reason " we prefer to use such oleic acid " as has been distilled by the use of heated steam, as is now well

" understood; but this is not essential, and in employing oleic " acid for these purposes it is to be employed in like manner to " olive oil."

[Printed, 3*d*.]

A.D. 1854, April 3.—N° 763.

DEVINCENZI, Guiseppe.—" Improvements in producing ornamented and figured surfaces and surfaces for printing from, also " the hardening or preparing of certain objects to be employed in " the process." These improvements consist, " first, in the employment of plates or surfaces of hard metals and alloys for " receiving by pressure sunk impressions of natural or manufactured objects, such impressions being produced on the said plates " or surfaces while in a softened state, and the plates or surfaces " being subsequently hardened, so as to render them fit for printing from, either by an independent process, or by the compression to which they are subjected in receiving the said impressions." " Second, in the employment of hard granular " substances combined or incorporated with varnish or other adhesive material, for making designs to be reproduced as sunk " impressions on metallic or other surfaces." " Third, the reproduction of impressions of natural or manufactured objects, " or of designs, obtained either on metals or on other materials " by stereotyping." " And, fourth, the hardening of objects to " be employed in producing sunk impressions on metallic and " other surfaces." The natural or manufactured objects employed " for making depressions on soft metal may be " feathers, leaves, " &c., or lace, embroidery, paper cut out in figures, &c." Sunk impressions may be made according to the second part of this invention by drawing on the surface of the " softened sheet of metal figures or designs, with any suitable adhesive material in which is incorporated hard " granular matters," and when well dried submitting the " sheet of metal to pressure." All such impressions, whether on " soft metals" " or on other soft materials," may be reproduced in reverse by the galvano-plastic process, or by stereotyping in the usual way. Such soft objects, as pieces of wood or of flesh, may be sufficiently hardened to give impressions by preparing them with " a solution of bichloride of mercury and of " chloride of ammonium," or " by submitting them to a dry heat."

Such figured metallic surfaces may be employed for type, calico, or paper printing, and other purposes; also for stamping and embossing other metals, leathers, stuffs, and other materials and uses.

[Printed, 4*d*.]

A.D. 1854, April 5.—N° 781.

NEWTON, William Edward.—(A communication.)—"Im-" proved apparatus for printing piece goods or fabrics." "This " invention consists in the adaptation of a series of blocks to a " table or stationary platten, the blocks being moved out upon each " side of the machine to receive their color, and then carried back " and depressed upon the goods, which are fed forward over the " surface of the table between each impression a distance equal to " the width or length of the blocks. By this means any number " of colours, according to the number of blocks, may be simultaneously applied to the fabric, and by that means a very considerable economy in labour and time will be effected." The Patentee claims as new, " first, the combination of the series of " blocks with the stationary cases (for holding the color sieves) " or their equivalents, and the endless chain register, operating " in the manner substantially as described, by which any numbers " of colors may be simultaneously applied, and a section of the " figure be completed each time the blocks are depressed." " Second, the mode of holding and feeding the material to be " printed by means of the endless chain and hooks." "Third, the " method of connecting the blocks with their carriages by means " of the pins and springs." " Fourth, the method of giving to " the blocks by means of the sector, or its equivalent, whereby " they are moved in with a slow motion and out with a rapid motion, and are caused to remain stationary at the two extremes of " their traverse while they receive their color, and also while the " impression is being made." " Fifth, the method of operating " the blocks upon horizontal ways by means of the cog wheels " and rack bars, or their equivalents, the color being applied to " them at one extreme of their traverse and the impression made " at the other."

Generally this is a machine for printing by means of blocks one or more colours. The movement of the fabric is regulated by pins attached to endless guide chains; the printing blocks and colour sieves are elevated and depressed as required by suitable cams and levers; and the blocks may be caused to traverse to and fro from the colour sieves, where they are supplied with colour, to the printing table by means of the actions of a sector driven by a pin on the crank of the first motion shaft.

[Printed, 10*d.*]

A.D. 1854, April 6.—N° 801.

WORRALL, James, Junior.—"Improvements in the method " of bleaching fustians and other textile fabrics, and in the " machinery or apparatus connected therewith." These improvements consist, "first, in passing two or more pieces of goods or " fabrics simultaneously through the apparatus. Secondly, in " carrying the pieces upwards over a geared roller or rollers, placed " above the 'becks' or vessels containing the bleaching liquids. " Thirdly, in employing a heated steam pipe to separate the pieces " previously to their passing over the said geared rollers, so as to " admit air to both sides of each piece, and also to heat the same, " if required. Fourthly, in employing a perforated pipe to " separate the pieces after they have passed over the said roller " through which the bleaching liquids are to be forcibly injected " on to or into the cloth, so as perfectly to saturate the same; or " the 'chemic' or other bleaching liquid may be pumped upon the " cloth, either through the perforated pipes or into a cistern, on " such an elevation as to flow freely through the perforated pipes " on to the cloth, falling into a cistern below. And, fifthly, in the " introduction of a steam cylinder into the vessel or vessels con" taining the bleaching liquor, for the purpose of heating the " cloth on the liquor, when required. And, lastly, in those cases " where it is preferable to boil the cloth in alkali, I place the " goods in a roller or rollers set on end, and enclosed in a pan or " vessel, and pump the bleaching liquor upwards from under an " through the goods, allowing it to fall or descend again into the " containing vessels, thus causing a rapid circulation of the " liquor through the goods, as well as obviating the creasing or " folding of the same, occasioned by plaiting or folding them, as " now in use."

[Printed, 1*s.* 4*d.*]

A.D. 1854, April 7.—N° 819.

RIGBY, William.—"Improvements in machinery or apparatus for engraving metallic cylinders or rollers for printing "calico and other surfaces." The Patentee claims an arrangement of apparatus "for transmitting the motions of the tracer to "the cylinder or to the tools, or, to the cylinder and tools respectively, so as to produce the figure or repetitions of the figure "upon the cylinder as described." "This invention relates to "machinery or apparatus for etching or engraving upon cylinders "or rollers, and is an improved method of producing any figure "or repetitions of a figure upon the surface of a cylinder through "a combination of two motions; one in the direction of rotation, "which I recommend being given to the cylinder, and one in the "direction of its length, which I recommend being given to the tool "or tools; and the novelty of this invention consists in the peculiar "arrangement of the mechanism or apparatus, by means of which "both these motions are simultaneously effected, on the passing "of a tracer over an enlarged drawing of the figure, the tracer "being affixed to a carriage which travels upon a bar or rail connected with the cylinder, by arms attached thereto, in such way "as to impart to it its rotatory motion; which carriage also, in "travelling along the said rail, transmits a longitudinal motion to "the tool or tools through gearing attached to the rail, and "intermediate between the carriage and the tools."

[Printed, 7*d.*]

A.D. 1854, April 13.—N° 868.

DEVINCENZI, Guiseppe.—"A method or methods of producing engraved, figured, and typographical surfaces for printing and embossing from, and for ornaments; also certain "machinery employed therein."

This invention consists in, "first, the converting into raised or "sunken engravings or perforations, by means of electro-chemical "action, impressions obtained on metallic surfaces," "and inked "or varnished by the lithographic process, or powered over with "fusible matters," "these surfaces being employed as electro-"positive metals or as positive electrodes." The impressions on metallic substances may be obtained by "writing or drawing on "such substances with some greasy material, as for example

" lithographic pencil or ink," or the writing or drawing may be made on paper or on lithographic stone, and then transferred to such surfaces.

"Second, the special employment of a solution of sulphate of " copper for producing such engravings or perforations on stee " or zinc." "When the engravings are to be on steel or zinc " I use a single cell, and I generally prefer a weak solution " of sulphate of copper for steel, and a saturated solution for " zinc."

"Third, the application of the processes described for producing " engravings by the simple chemical action of acids on metallic " surfaces;" the writing or design being protected by means of the greasy ink.

"Fourth, & Fifth, the application of the processes described, for " producing, by means of acids, engravings on glass or crystal, or " stone for ornaments, by means of chemical action;" by the application of acids to the polished surfaces of glass, &c. on which the design has been written or impressed in greasy ink.

"Sixth, the application to the processes described for obtaining " moulds for reproductions in metal by electro-plating, stereotyping, or pressure." "Sunken impressions on soft metals, or gutta " percha, or other substances which easily receive impressions " (which may be obtained by the Patentee's machines), may be " used either for taking proofs, for transferring them on to " metallic surfaces, or for other purposes, or for matrices for reproduction in relief by electro-plating, or stereotyping." Or such impressions on softened metals may be made by "pressure" and afterwards "re-hardened."

"Seventh, the process of transferring print work or engravings " on to metallic surfaces or lithographic stone, by wetting the " paper and exciting and covering the impressions to be reproduced with some greasy substance, as described." "I damp the " print or engraving with water, or (which I prefer) with acidulated " water, or gum water, and leaving on the surface of the paper " just a light veil or film of this water, I apply some greasy substance, either by gently rubbing it on with a sponge, or using a " soft brush or pad. This greasy matter will only adhere to the " impressions, and will, moreover, act on them as a solvent, while " the paper will be left clean." The paper is then well washed and dried. "I then damp the surface of the paper with very thin

" gum water, and transfer either on to a metallic surface or " lithographic stone or zinc."

" Eighth, the application of the processes described for producing " figured metallic surfaces, by the super-imposition of other " metals, whether such surfaces are to be afterwards more deeply " engraved or not." This may be effected by electro-plating a coating of one metal on the surface of another, and making the impressions on the coating. "I then employ this surface as an " electro-positive metal or as a positive electrode, and so I remove " the super-imposed layer wherever there is no impression. " This surface may then be subjected again to an electric current, " by immersing it in a liquid which will not attack the metal of " the layer, so as to obtain engraving of greater depth."

"Ninth, the machinery intended to produce with a very limited " number of types print work or impressions in typographic " characters." "This type printing machine has for its object to " produce print work with a very limited number of stamps or " types, which do not generally exceed the number of printers' " characters and designs."

[Printed, 1*s*. 6*d*.]

A.D. 1854, April 17.—N° 886.

TANNAHILL, David.—" Improvements in lithographic and " zincographic printing." This "invention relates to a system " of printing from lithographic stones or zinc plates upon woven " fabrics, paper, and other material, in the form of a continuous " web." And consists, "first, in the general arrangement and " construction of lithographic and zinco-graphic printing machines." " Second, the system or mode of causing the impression rollers of lithographic and zincographic printing machines, " to traverse over the printing surface, this printing surface " having no longitudinal motion." "Third, in the system or mode " of causing the impression roller or rollers of lithographic and " zincographic printing machines to traverse from end to end of " the machine, by means of screw shafts disposed longitudinally " and acting on the frame which carries the impression roller or " rollers." These screws have a reversing motion which causes the " impressing roller to return to its original position." "Fourth, " in the system or mode of raising and lowering the tables or " rollers of lithographic and zincographic printing machines,

" which have traversing impression rollers by means of cams " actuated by the traverse movements of the frames carrying the " impression rollers." "Fifth, the system or mode of arranging " two impression rollers with their accompanying details in a " single traversing frame in lithographic and zincographic printing machines, so that two pieces of fabric or two impressions " may be printed at once." This may be effected by having two impressing rollers quite independent of each other, each provided with a tympan with its accompanying details. This machine, as drawn and described, consists generally of a frame on which is placed the table, and upon the table is fixed the stone or plate to be printed from; over the stone or plate is the impressing roller or bowl carried in a frame. By these improvements the impressing roller or bowl is caused to revolve over the face of the printing surface, instead of the printing surface traversing under the bowl. The table with the printing plate may be depressed by means of a cam, to allow the impressing roller frame to return after giving an impression. The printing plate is supplied with colour, by means of a "a pair of inking rollers which are carried " by an oscilliating frame, which depresses them so as to act on " the stone or plate at the proper periods." This oscilliating frame is attached to and travels within the traversing frame which carries the impressing bowl; to which is also attached a damping trough with a supply of water, " and serves to communicate the " requisite moisture to the stone or plate when traversing in " contact with its surfaces."

[Printed, 11*d*.]

A.D. 1854, April 18.—N° 893.

WATT, Charles.—"Improvements in bleaching hemp, flax, " and other fibrous substances." This invention consists "in " bleaching hemp, flax, and other fibrous substances of a similar " nature, such as jute and others, by subjecting them to the action " of an alkali, and afterwards to the action of chlorite or hypochlorite of soda or other base; and I prefer to repeat the action " of these substances two, three, or more times alternately, until " the fibre is sufficiently acted upon; and I then complete the " bleaching by the action of hypochlorous acid or other suitable " bleaching agent." The Patentee places the fibre on frames in a basket and steeps or boils it in a solution of caustic soda at

7° Beaumé. When the fibre has been drained out of the alkali, and washed, the basket is transferred to a vessel containing a solution of chlorite or hypochlorite of soda of about the specific gravity of 1·100, where the fibre may remain for three quarters of an hour. After repeating the above process a suitable number of times, the bleaching may be completed by immersing the fibre in a much weaker solution of hypochlorite, "to which is added hydrochloric " acid to liberate the hypochlorous acid."

[Printed, 3*d*.]

A.D. 1854, April 28.—N° 965.

HEYWOOD, JAMES.—"Improvements in machinery or apparatus for printing yarns." This invention relates to " printing " such yarns as are required to be partially printed in the " hank " " (leaving intermediate spaces blank), to be subsequently employed " in manufacturing clouded or speckled goods or fabrics." The yarn to be printed in the hank is distended horizontally across an oblong square frame. The printing apparatus may consist of a colour box to be charged with the dye, in which work the colour rollers or small drums. These rollers carry up the colour or dye, and impress it on the yarns. Working simultaneously with the printing rollers are a set of counter-pressure rollers or bowls placed above the yarn and on the same carriage. This carriage, containing the colour trough, printing rollers, and bowls, is caused to traverse by means of a winch on guide rails from one end to the other of the frame, containing the stretched hanks of yarn, and thereby print the yarns in so many colours as there may be divisions in the colour box. "Parts of the yarn may be tightly " compressed between laths or bars, and the color rollers allowed " to pass between them." The guide rails and tension bars may be distended and contracted by means of suitable mechanical arrangements.

[Printed, 8*d*.]

A.D. 1854, May 4.—N° 998.

MEE, CORNELIA.—(Provisional Protection only.) "An improved " foundation for working out ornamental designs or patterns." " I propose to print on paper or other suitable material, a series of " squares of any size, but so arranged that every square printed " thereon shall break joint (horizontally or vertically) equidistant

" with the other squares (as shown in the drawing). On this " foundation, ornamental designs of any description may be drawn " or shaded, and covered with various coloured bead work or any " other suitable material."

[Printed, 5*d.*]

A.D. 1854, May 9.—N° 1038.

HORSFORD, Eben Norton.—"The removal of chlorine from " substances and fabrics." This invention consists in "neutralizing chlorine by means of the substance called anti-chloride of " lime." Anti-chloride of lime may be prepared by passing the fumes of burning sulphur into milk of lime contained in a suitable vessel provided with agitators. The anti-chloride of lime being collected on filters may be dried and preserved for use. It may be applied by adding a small quantity directly to the pulp engine; or fabrics out of the "chemic" may be passed through water slightly acidulated, containing in suspension a little of the anti-chloride.

[Printed, 3*d.*]

A.D. 1854, May 10.—N° 1040.

SPARRE, Pehr Ambjorn.—" An improved mode of preventing " the alteration or falsification of written documents." The improved mode consists in "the covering the surface of the paper " (or such portion of the paper as is to be written upon), with a " design printed in two colors, alternating in close succession, one " of the said colors being indelible, and the other color to be of " such nature that it can be easily discharged from the paper." " The indelible ink or color which I prefer to employ is com- " posed of Paris blue or lamp black, ground with very hard boiled " linseed oil or nut oil; and the delible ink may be composed of " cochenille or of common writing ink, dried and pulverized, and " ground with very slightly boiled oil, or with water thickened " with gum or plaster of Paris." " The printing may be performed " by Congreve's process, or by any other suitable means."

[Printed, 3*d.*]

A.D. 1854, May 18.—N° 1107.

MILLER, William.—(Provisional Protection only.) " Im" provements in bleaching flax, hemp, and other fibrous sub" stances." "This invention consists in dispensing with the " ordinary preliminary process of steeping or boiling the materials " or articles intended to be bleached or cleansed, or to have their " color discharged, and putting them at once into a simple solu" tion of chloride of lime instead of the ordinary solution of " chloride of lime and vitriol used as a secondary process." " In " some cases it may be necessary to apply a solution of vitriol " with cold water after the chloride of lime has been removed."

[Printed, 3*d.*]

A.D. 1854, May 18.—N° 1111.

MACLEAN, John, and FINLAYSON, Thomas.—" Improve" ments in the manufacture or production of ornamental fabrics." This invention " relates to a system or mode of producing orna" mental coloured designs upon yarns or warps, to be afterwards " woven up into piece goods, and consists more particularly in " the employment of apparatus or means for producing such de" signs, by means of discharging agents acting upon a dye or " color previously imparted to the yarn. In one modification of " the apparatus used, the warp prepared as for the loom is de" livered from a roller at one end of the machine, and passes " between a pair of relief impressing or printing rollers (made of " gutta percha or other material capable of resisting the action of " the acids), which are supplied with the discharging agent em" ployed from troughs, by means of feed rollers. These rollers " are geared together, and their pattern surfaces are exact counter" parts of each other, and the discharging agent is applied on " both sides of the warp as it passes through or between the " rollers. The warp thence passes to the washing tank, which is " divided into several compartments, being guided through these " sections by rollers." The warp is then squeezed, and dried over steam cylinders, and when wound on a beam is ready for the loom. The whole is driven at a uniform speed by gearing. " The washing tank is made to travel on rails, so that its distance " from the printing rollers can be altered for the regulation of the " time of exposure of the warp to the action of the discharging

" agent before it enters the water." The discharging agent used may be a " mixture of sulphuric acid and nitric acid, diluted with " water, and thickened with fine pipe clay, or other discharging " agents." " A cam movement is geared with the driving mechanism, as to lift the upper printing roller for a short time, as " each length of scarf is printed; in this way, as long as the upper " roller is elevated, the warp remains untouched by the discharging " agent, being guided on each side in such a manner as to pass " clear over the lower roller when not pressed down upon it by " the upper one. An apparatus for starching may be interposed " between the washing trough and the drying cylinders."

[Printed, 1*s.* 5*d.*]

A.D. 1854, May 23.—N° 1149.

KUCZYNSKI, JOSEPH.—" Improvements in preparing baryta " and its salts." In order to prepare the salts of baryta " I mix " the sulphate of baryta and charcoal with chloride of sodium or " other suitable salt, and this mixture when heated becomes " fused, and thus a much more perfect reaction is obtained; and " in place of being compelled to allow the materials to cool in the " furnace, I am enabled to run the compound from the furnace, " and thus a saving both of time and fuel is effected. The sulphite of barium thus obtained is dissolved in water, and may be " reduced to the caustic state by boiling with oxide of zinc or " other metallic oxide. The hydrate of baryta may be converted " into carbonate by the action of carbonic acid gas. The acetate " of baryta may be employed in dyeing and printing, as a substitute for acetate of lead. The borate and other salts of baryta " may be used in the manufacture of glass in place of similar " salts of lead."

"One hundred parts of the native sulphate of baryta, when " crushed and ground to powder," may be mixed with about " fifteen parts of charcoal, also in powder," and with "two hundred parts of common salt," and heated in a " reverberatory " furnace," "until complete fusion is effected and until all evolution of gas from the fused materials has ceased." " By roasting, the sulphuret of zinc or copper, formed in the process as " above mentioned, may again be reduced to the state of oxide."

[Printed, 3*d.*]

A.D. 1854, May 23.—N° 1155.

JOHNSON, WILLIAM.—(A communication.)—(This invention did not proceed, the Law Officer having refused Provisional Protection.) "Improvements in the treatment of organic matters, and in the application of the products thereof." "The matters to be treated are gluten, fibrine, lignine, gelatine, albumen, caseine, and gum dextrine, or substances containing these matters. These substances are subjected to the action of tannic, gallic, and mimotannic acids, or acids of a similar class, and the result is the formation of compounds closely resembling caoutchouc and gutta percha. The tannin and albumenous matters are mixed for such purposes with hydro-carbons, oils, fats, turpentine, tar, naptha, resins, wax, gum resins, linseed oil, sugar, soaps, or alcohol, or similar hydro-carbons." "A substance resembling gutta percha is obtained by mixing common glue with the resinous soap of potash, and then decomposing the mass with tannic acid. By using turpentine and soot, a product approaching in its nature to the general characteristics of caoutchouc is obtained." "Leather, and skins, flesh, paper, fish, oysters, and other shell fish, and sponges or spongy matters, may be converted in a similar manner and for similar ends." Among the uses to which these new compounds may be put is that of fixing the "colouring matters in the operations of the dyer and printer," in place of lactarine.

[Printed, 3*d.*]

A.D. 1854, May 24.—N° 1160.

BALL, THOMAS.—"An improvement in manufacturing ornamented looped fabrics." This improvements consists in "printing looped piled fabrics made in warp and nitting machines." "Two descriptions of piled fabrics are now manufactured by warp and nitting machines; one where the pile is raised after the fabrics have been produced in the machinery, the other where the pile is produced in the act of making the fabrics in the machines." Both classes of fabrics may be employed. "The printing of such fabrics may be according to taste, and by the means ordinarily practised in printing other fabrics."

[Printed, 3*d.*]

A.D. 1854, May 30.—N° 1198.

MIDDLETON, Lewis Stirling. — (Provisional Protection " only.)—" Improvements in the manufacture or production of " ornamental fabrics." These improvements relate to the manufacture of what is generally called " poncho stuff." " The body " or ground fabric is woven from yarns or threads of the colour " of the intended ground of the piece; at the same time certain stripes or lines of grey or bleached yarn are also woven " in. Such fabric is finally ornamented by printing a pattern " or device on both sides or faces of the stripes, thus extending " the application of varieties of color."

[Printed, 3*d.*]

A.D. 1854, June 2.—N° 1227.

WEBSKY, Egmont.—(Partly a communication.)—" Improve" ments in bleaching." These improvements consist, first, of an apparatus wherein " the linen goods and linen yarns dur" ing the whole time of their being boiled with bleaching " liquids are kept in continual motion by machinery." " For " this purpose [the bleaching of linen goods] I employ a " square box or vessel [similar to a dyebeck] formed in one " direction by two vertical, and in the other by two inclined " sides." This box or vessel has a double perforated bottom, under which is a series of pipes for the purpose of heating the liquids, and it is divided into any required number of compartments by perforated partitions, each of which compartments has to contain an endless string of goods tied or sewed together. Over the beek is placed a pair of slight squeezers and a wince or reel, between and over which the goods are caused to pass continuously, these being driven by a strap or otherwise. The squeezing rollers are grooved, and have a slight sliding lateral motion also given to them by means of cams, which has the effect of opening the bands of cloth, and so presenting a fresh surface to the action of the bleaching liquors. For bleaching " linen yarns " a similar vessel is employed. The hanks of yarn are placed on staves or poles, and these are made secure by passing them through holes into disks attached to a revolving shaft. The yarn being thus affixed to this species of winçe, it is caused to revolve in the bleaching liquid. A roller may be made to press against the yarn as it revolves, which will assist in keeping the yarn straight. The moisture is separated or driven off the yarn by placing the hanks on pins attached to disks revolving on an upright shaft, at a speed of six or eight hundred revolutions per minute. "For facilitating " the drying of the yarns boards are fastened to the arms of the " disks, which work like the blades of a fan, and force air against " and between the yarns."

[Printed, 1*s*. 4*d*.]

A.D. 1854, June 2.—N° 1228.

TAYLOR, ISAAC.—"An improvement in producing thin metallic " shells adapted to printing." Copper sheeting of the purest and best quality, being "cut into the required sizes, according to the " intended dimensions of the shells, is to be prepared for the " subsequent operations by several annealings and rollings " between cylinders, until it presents a surface that is free from " inequalities, and that is mechanically true. A metallic sheet " being thus prepared, it is curled upon a mandril having a slot " along its length, and which is also recessed at its two opposite " edges. The two approaching edges of the sheet are then turned " over upon a square edge inwards as to the shell, and each in " the direction of the radius of the cylinder when brought " together." This slot has a protuberance "at its very angle."

"These folded edges or margins, being brought into perfect " metallic contact, are inserted in the fold of a slip of metal, " say, of copper, and then this folded strip with its contents is " nipped together by the action of a lever applied to successive " portions of it interiorly." "If tho^t desirable, copper rivets " may be passed at intervals through this fold, so as to secure it " against any accidental disruption." "In turning over the two " edges of the sheet, as has now been mentioned, each edge at the " very angle is so brought upon a slightly projecting rib as to " give it a corresponding protuberance; when, therefore, the two " edges are brought together, and secured in the manner now " mentioned, these two protuberances form a double nib along " the length of the shell, and together they contain a small excess " of metal, as related to the general surface. This excess of " metallic substance supplies what is required in the after process

" of effecting an invisible joint." " The shell (the thin roller), " which is now mechanically entire," being shod on a suitably shaped mandril, is " placed within the nip of a machine, (such " as the one described in the specification,) and where it is sub- " jected throughout the extent of the joint, a small part of it at a " time, to a mechanical pressure, so great as to bring the two " metallic substances into absolute contact, the protruding nib " containing, as it does, metal enough for completing a superficial " continuity."

Very thin rollers, made on this principle, are supported in their strength by the insertion of an "expanding mandril," constituted of four pieces, two of which are wedges; such thin rollers may be engraved readily by the Patentee's mode of engraving, and worked advantageously in his printing machines, for which he has also obtained Patents.

[Printed, *6d.*]

A.D. 1854, June 2.—N° 1230.

WILKINSON, William.—(Provisional Protection only.) "Im- " provements in stamping, raising, or printing patterns upon " leather, textile, thread, cut pile, and other similar fabrics; " and also for dressing textile, cut pile, and other similar fabrics " previous to the stamping and printing." " In order to print " or stamp the pattern it will be necessary that the web or " other material to be printed or stamped while in pieces, " should be put into slide stretching frames between two straps " (to which pins or hooks may be attached), and the straps " pressed upon by two rollers each selvage of the web; and the " same straps must be provided with straps or rollers to prevent " the web from running in, so that the web may be properly " stretched to receive the required pattern." The web, &c. may also be caused to "run between the slots of the frame" in order to stretch it.

" By this means the material, of any desired breadth, may be " printed or stamped " by " rollers with engraved patterns, or " engraved blocks, or other ordinary means now in use."

Gloves, stockings, socks, shirts, or single loop elastic manufactures' leather fabrics may be thus printed or embossed while on " suitably covered dressing boards.

[Printed, *3d.*]

A.D. 1854, June 3.—N° 1236.

RENTON, JOHN, and ATTWOOD, HENRY.—(Provisional Protection only.) "An improvement in the manufacture of " starch, applicable in part to the solidifying of colours and " other substances held in solution or suspension." "We em- " ploy a box or chamber with an opening at one end, which " gauges the size of the cube or other shaped block to which " the starch is to be moulded; and the other end of the box or " chamber we connect with a force pump, which supplies the " liquid starch thereto. The box is so formed, that, as the " liquid starch is forced in, the water will find its way through " the sides, while the particles of starch will be retained, and " will accumulate at the opposite end of the box to that at " which it entered. When commencing the operation the exit " end of the box is closed, but as soon as a sufficient amount of " starch has accumulated to form a resisting medium to the " stream that continues to be pumped in, the cover is removed, " and the pressure of the incoming liquid starch will force out the " solidified starch in a continuous block, which block may be cut " into pieces by wires or otherwise."

[Printed, 3*d.*]

A.D. 1854, June 6.—N° 1256.

ATKINSON, DAVID.—"Improvements in printing, and in the " machinery or apparatus to be employed therein or connected " therewith."

"The Patentee claims, "first, the general construction and " arrangement of the lithographic or transfer printing machinery " and the apparatus employed therewith." "Second, the system " or mode of printing designs or letter-press on a continuous web " of paper or other fabric; from 'transfers' laid on or from " writing or designs drafted on to a cylindrical surface, in place of " on a plane surface, as in ordinary lithographic or zincographic " printing." "And, thirdly, the application and use of the " cutting apparatus, in conjunction with my improved printing " machine."

"The paper, calico, or other fabric which is to be printed is first " placed on a roller, and from thence passed between an upper " roller (which has previously had the design or letter-press

" drafted or transmitted on to it) and a lower roller (the bowl), " covered with flannel or any other flexible or elastic material. " The paper or other fabric, having by the above means received " the required impression, if intended to be used in short lengths, " is then passed under a cutter, placed at a proper distance, which " is caused to descend at any required time, and to cut off the " paper into any number of lengths that may be necessary, and is " finally passed into a convenient receiving box, thus accomplishing the whole process by one machine. The machine is " fitted with a self-inking apparatus, and is capable of printing " a sheet of any size in several colors at one time."

The colour is supplied by furnishing rollers to the printing cylinder. Another roller, also working against the printing cylinder, covered with a soft material and wetted with water, keeps the printing surface in a proper moistened state.

[Printed, 10*d.*]

A.D. 1854, June 10.—N° 1283.

BARCLAY, ANDREW, and BARCLAY, JOHN.—(Provisional Protection only.) " Improvements in printing textile fabrics and " other substances."

"This invention relates principally to certain improvements " upon the printing machinery, for which patents were granted to " Mr. James Melville, in the years 1852 and 1853. The ring " frames or wheels upon which the large drum is built may be " cast in a single piece ;" "the teeth of this large spur wheel, as " well as those of the pinion driven by it, may be formed on the " stepped or sectionally divided system ;" "and the drum may be " driven by a pinion in gear with the large spur wheel."

The driving gearing is so arranged that the "pinion driven by " the large spur wheel and the pinion of the printing roller have " respectively such numbers of teeth as on being multiplied " together, will equal the number of teeth of the large drum spur " wheel.' In case of the pattern being of such a size as will not divide into the circumference of the drum segments may be applied so as to "turn the printing roller so much more round " than the regular teeth would do, as will bring the roller to the " same position for starting as it had before the revolution of the " drum." The printing roller may be further adjusted by a

" fractional nut " on its pinion, and may be carried " in bearings " in the same frame which carries the color trough, &c." The frame itself may be adjusted by means of screws working through pendant brackets, and by levers. The fabric or yarn to be printed may be wound " round the large drum, in a spiral or helical " direction," and the printing roller, which may be made in three or four pieces, and set at right angles, may be caused to traverse so that its " continuous line of impression will coincide with the " spiral line of the fabric." It is finally proposed to " encompass " the large impression drum with a spiral coil of flat piping " or other heating surface.

[Printed, 3*d.*]

A.D. 1854, June 13.—N° 1291.

PÉTER, Antoine Louis.—" Improvements in treating a certain kind of indigo." The Patentee claims " extracting from " Manilla or Philippine Islands indigo any calcareous and earthy " matters by means of acids or acid solutions, which, combining " with said impurities, give rise to soluble salts in the manner " described, or any analogous one, for rendering said kind " of indigo fit for manufacturing purposes." " The acid (hy- " drochloric acid is preferred) is gradually poured on the indigo " which has been crushed and diluted in such manner as to form " a liquid paste," until all effervescence ceases. The whole is left to settle, and then is put upon filterers; washed with hot " water, which may be pure or alkaline, and at last the paste is " pressed and dried."

[Printed, 3*d.*]

A.D. 1854, June 17.—N° 1321.

FOURDRINIER, Joseph.—" Improvements in machinery for " washing, boiling, cleaning, and bleaching rags, fabrics, and " textile substances." " This invention consists of constructing " a vessel, by preference of a cylindrical form, closed at each end, " and mounted on hollow axles. On the interior near each end, " is fixed a sieve of fine wire cloth, or other suitable matter. The " vessel is provided with a manhole or manholes, for charging " and discharging the materials into and from the vessel. To the

" two hollow axles of the vessel a pipe with branches is connected, " by which water, or washing, or dyeing liquids can be caused " to flow into either end of the vessel and away at the other end. " In the interior of the vessel are a number of spheres, which, by " the rotation of the vessel, cause the matters under process to be " beaten and pressed; and in order to cause the fluids to boil, " steam pipes or a jacket or both, are used." In the interior of the vessel are placed several shelves or ledges " and their object " is to carry up the spheres or beaters, and to allow them to fall " off when the shelves or ledges are moving upwards, and they " thus beat and roll on the rags or other matters which for the " time being are in the vessel."

[Printed, 8*d.*]

A.D. 1854, June 17.—N° 1322.

NEWTON, Alfred Vincent.—(A communication.)—" Improvements in machinery for block printing." These improvements consist, " first, in the mode of arranging on flat surfaces " consecutive portions of so much of a design as is intended to be " reproduced in one and the same color, and giving rotary motion " thereto." " Secondly, arranging in one and the same machine a " series of blocks or flat printing surfaces containing component " parts of the same design (whether carried by rotating prisms or " otherwise) and imparting simultaneously to the fabric under operation an impression in the several colors contained in the design." This invention may consist of a long frame divided into sections. " In each section of the frame a bed is provided, to take the pressure of the descending block, and in the spaces between the " several beds a roller is mounted for the purpose of supporting " an endless apron (the blanket) which is by preference made of " vulcanized india-rubber. This endless apron passes over all the " beds and the rollers and around two four-sided prisms situated " at opposite ends of the frame." " The faces of these two prisms " should correspond in breadth with the faces of the printing " prisms."

" Immediately over each bed there is a four-sided printing " prism, the faces of which are provided with dove-tailed flanges " extending along the whole length of the prism for the purpose

“ of receiving plates of brass or other metal (which may be slidden
“ in or out at pleasure) to which are secured in any suitable
“ manner the printing blocks. In this way there will be one
“ printing block for each face of the prism.” “The shaft of each
“ prism is provided with journals at each end, fitted to slides and
“ adapted to slide vertically in suitable ways in the sides of the
“ frame, and the two sliders, one on each side, are connected
“ together by a gallows frame which in the middle of its length
“ is provided with an anti-friction rolier which rests on the peri-
“ phery of a cam on the main shaft, there being one such cam,
“ called the impression cam, for each prism.” As this cam rotates the blocks are elevated and depressed at suitable times in order to supply themselves with color from the sieves, and afterwards to make the impressions on the fabric placed on the endless blanket; and the cam may be so formed as to allow the blocks to dip twice or to make double impressions. The endless blanket or apron is caused to move forward at the proper moment, carrying with it the fabric, by means of the prisms at the end of the frame round which the blanket passes, the rotation of which is regulated by a intermittent motion given to them by a lever, worked by an excentric, at the lower end of which is a spring catch working against pins attached to the end of one of the prisms.

“At the end of each complete impression, whether single or
“ double, the prisms which carry the printing blocks must be
“ turned one quarter of rotation,” which may be effected by a longitudinal sliding bar, actuated by a lever, which acts on pins on the ends of the prisms.

“The sieves for the colors are mounted on frames adapted to
“ slide transversely in parallel grooves in the frame, and are
“ moved by a pair of levers (one at each end of machine) hung on a
“ fulcrum rod which extends across the frame.” The sieves are thereby caused to traverse in and out from under the blocks.

The fabric may be prevented from rising or following the blocks after an impression by means of a series of bars provided with points along their lower edge, laid on the fabric, which bars are elevated at the proper moment to allow the fabric to travel on after each impression. The machinery may be employed to work *blocks* of sufficient size thereby dispensing with the prisms.

[*Printed*, 10*d.*]

A,D. 1854, June 24.—N° 1393.

LIGHTBOWN, Henry.—(Provisional Protection only.) "Im-" provements in drying pulp in the mannfacture of paper, also " paper hangings and printed textile fabrics." "My improve-" ments consist in causing the materials to be dried to pass over a " plate or series of plates or chambers, heated by a number of jets " of gas; the apparatus may be adapted immediately to the paper " making or printing machine, or it may be separate therefrom, " and the drying process constitute a distinct operation.

"The materials I cause, by suitable mechanism, to travel at a " quicker or slower rate, according to the drying required, and " the heating of the plates I also regulate by consuming more or " less gas."

[Printed, 3*d*.]

A.D. 1854, June 27.—N° 1415.

ANTROBUS, Richard Leicester.—"A new or improved " method of printing oil cloth for floor and table covers, paper " hangings, and other surfaces." This invention consists in the " construction of a machine for printing oil cloth, paper hang-" ings, and other surfaces."

The machine consists of a "series of pairs of rolls (geared " together), there being as many pairs of rolls as there are colors " to be printed; the said rolls are supported by and work in " suitable framing. The lower roll of each pair of rolls is plain; " the upper roll of each pair is engraved with that portion of the " pattern which is to be printed in the colour to which the said " roll is devoted, the said pattern being in relief." "Over each " pair of rolls is situated an inking or coloring roll, & over the " said inking or coloring rolls are troughs for containing the " colour to be printed." "A slit extends from end to end in the " bottom of each of the troughs, through which slits the color " passes to the brushes, by which brushes the said colors are " delivered on to the inking or coloring rolls." A reciprocating motion may be given to the troughs. "The bearings of the " printing rolls are capable of a vertical motion, whereby the said " rolls may be raised for the purpose of arresting the printing," which is effected by an inclined plane passing under the bearings of the rollers. Discs (box wheels) are attached to the ends of the rollers. One large roll (a bowl) may be substituted in place of the several plain rolls referred to.

[Printed, 6*d.*]

A.D. 1854, June 28.—N° 1422.

EDWARDS, Henry Sutherland.—(A communication.)—" Improvements in preparing textile fabrics or materials, for " the purpose of their better retaining colors applied to them." This invention " relates to the preparation of textile fabrics " or materials, for the better fixing thereon of colors, such " as lithographic ink, and other coloring matters of an analogous nature, or in the composition of which similar ingredients enter, and consists in passing such textile materials " or fabrics, when intended to be printed by the ordinary " printing rollers, through a bath, consisting of water holding in " solution alum, sulphate of zinc, protochloride of tin, caustic " potash, and nitric acid, or other chemicals possessing properties " of a nature analogous to these matters." The various ingredients should be dissolved separately before mixing them together, and then the nitric acid added. These substances may be used in various proportions, according as the fabric or material is to be printed by the "lithographic press" or by the ordinary machine employed by calico printers.

[Printed, 3*d.*]

A.D. 1854, July 6.—N° 1490.

CARALLI, Nicholas Michael.—" Improvements in the manu- " facture or production of ornamental fabrics." These improvements relate, first, to the " system or mode of manufacturing or " producing ornamental fabrics of the zebra class." "Secondly, " to the manufacture or production of ornamental fabrics of the " zebra class, with a distinct and dissimilar printed pattern or " ornamental device on each side or external face." "According " to one modification of my system of manufacture, a plain twilled " or other class of fabric is used as the groundwork material for " the production of this duplex pattern, such fabric having no " flushing or back lashing on either of its surfaces; or, according

" to another modification of my system, a double fabric may be " employed, such fabric being woven according to any of the " existing systems, and consisting, in appearance, of two fabrics, " united by intermediate flushed threads, or threads which are " woven or otherwise worked into both sections of the piece. " Having thus prepared the raw fabric or material, I then print, by " any of the existing means or agencies, a distinct zebra pattern or " ornamental device of a similar kind, on each side of the fabric, " or on the two external faces, if the piece is of the duplex kind."

[Printed, 3*d.*]

A.D. 1854, July 7.—N° 1493.

LACEY, **William**.—" A new or improved method of making " copper rollers, cylinders, and tubes." This invention consists, " firstly, in making copper rollers, cylinders, and tubes from old " copper rollers, by contracting one of the said rollers upon another." And, " secondly, the method of constructing moulds " for casting copper rollers and cylinders." " I take two old " copper rollers which have been used for printing, &c." The pattern is removed from both, and the nib from one of them. The roller from which the nib has been removed is expanded by suitable mechanical means, and heated, when the unexpanded roller is introduced within it. " By cooling, the outer roller contracts upon " the inner one, and becomes firmly attached thereto." The second part of this " invention consists in casting hollow cylinders " in cast iron moulds, so constructed that the liquid metal shall " enter the said moulds at the bottom thereof, so that the said " metal in the said mould shall be undisturbed by air bubbles " carried down by the stream of metal, and the casting consequently sound." The melted metal is poured into passages, and running down these passages, enters the mould at the bottom, and as it rises, by filling the mould, chases the air before it.

[Printed, 5*d.*]

A.D. 1854, July 13.—N° 1535.

FLITCROFT, **William**, and **EVANS**, **Thomas**.—(A communication.)—(Provisional Protection only.) " Improvements in printing " and finishing floor cloths, or any other fabrics or materials printed " in oil colors." " Instead of using the printing blocks for each

" colour, viz., a colour block and a blotch block, as now adopted, " we only use one colour block for each colour used in the pattern, " and then one finishing or flushing block, which flushes all the " colours at once. This block we use dry, that is, we do not dip " it into the different colours and then apply it to the material, " but we press it on the material which has the pattern already " formed by the different colours with the first blocks, and " this finishing block so exactly fits the pattern that it constantly " meets the same parts of the material having the same color on " it, and therefore does not require wipeing or cleaning at every " application."

[Printed, 3*d*.]

A.D. 1854, July 15.—N° 1554.

BRINDLEY, ELIJAH HENRY.—" Improvements in printing or " ornamenting china, earthenware, and glass." This invention consists in " the use of flexible and elastic blocks or types for the " purpose described, such blocks or types being capable of being " adapted to the particular form of the surface to be printed." These blocks may be " flat, convex, conical, spherical, or other " suitable form." " The elasticity of the spherical, or other than " flat blocks or types, also admits of their being expanded by the " operator, so as to produce varieties in the size, shape, and character of the figures printed from them." The " block " is made of glue and treacle, in suitable proportions, with which a cast is taken from the mould, which, when set and removed, is ready for use. " Holders " made of " plaster of Paris, gutta percha, metal, " or earthenware, of suitable form," are attached to the back of the flexible block, such holders being of different and suitable forms, according to the nature of the impression to be made. The colour is supplied by a colour feeder, and may consist of a " thin flat bat " or cake of the same composition as that out of which the blocks " are made, with its surface grooved or channelled, according to " the kind of work for which it is intended," or a " stone slab;" " but when large convex or expanding blocks or types are used " the feeders should be on an elastic cushion." Various " vehicles" for suitable colours, and mixture for gold size, are given in the specification, as well as the mode of applying gold size to receive gold dust or powder.

[Printed, 7*d*.]

A.D. 1854, July 18.—N° 1582.

FONTAINEMOREAU, Peter Armand le Comte.—(A communication.)—(Provisional Protection only.) "Improvements in "zincography" consist "in producing by electro-galvanic agency "designs in relief on plates of zinc, from which impressions "may be taken by an ordinary printing press," "or from "which moulds may be taken to be employed in the formation of 'cliché' plates by the galvano-plastic process." The design being drawn or transferred from another drawing on to the zinc plate, has "resin, burgundy pitch, and asphaltum," in fine powder, dusted over it through a silk sieve. "The zinc plate is "slightly heated, and the powder or insulating mixture dusted "over and adheres to the drawing. The rest is removed, so that "the drawing alone is coated with the above mixture, while the "rest of the plate (to form afterwards the sunken parts) is left "clean and free, to be attacked by electro-galvanic action. The "plate is then heated sufficiently to soften the powder adhering to "the drawing, and to convert it into varnish similar to that "employed by engravers for stopping out.

"The plate is now placed in a weak solution of sulphate of zinc, "in face of another plate of the same material and size, and the "two are put in communication with the poles of a galvanic battery, so that the zinc plate with the drawing may serve as a node "to the other, and consequently have those (the intended sunken "parts) decomposed." The plate is then cleaned, and may be employed "to print from directly, or to serve as a matrix to a gutta "percha mould, on which copper is subsequently deposited, to "form a picture, according to the well-known galvano-plastic "process."

[Printed, 3*d.*]

A.D. 1854, July 21.—N° 1608.

BROOMAN, Richard Archibald.—(A communication from Jandin, C., and Duval, A.)—"An improvement in treating "raw silk fabrics while being dressed and dyed." The Patentee claims "the stretching of fabrics manufactured from raw or "undressed silk, or the holding of them in a state of tension, "both lengthwise and breadthwise, while they are being dressed, "by having the gum extracted therefrom, and while they are being

" dyed," by means of apparatus of suitable construction. The apparatus employed for discharging the gum from the silk may consist of a cistern, into which is put the soap or liquor used. In the cistern are two drums, which may be elevated or lowered by means of levers, and which receive a rotatory motion by means of a linked chain working into teeth on the peripheries of the drums. The fabric operated upon is wound from the one drum to the other, and in doing so is caused to pass over a "drum employed for " stretching the fabric breadthwise " (a breadthening roller), placed between the drums, but elevated out of the cistern. The dyeing process may consist in winding the fabric to and fro from one roller to another, during which it is caused to pass round a " cylindrical " frame " placed in the dye cistern, and over the breadthening roller situated at some elevation above.

[Printed, 1*s*. 10*d*.]

A.D. 1854, July 22.—N° 1616.

LOSH, WILLIAM SEPTIMUS.—" Improvements in bleaching." This invention consists, " in the treatment of vegetable fibres pre- " paratory to the bleaching thereof, by immersing them in a solu- " tion of any of the soluble combinations of sulphur with an " earthy base, such as the bisulphurets of calcium or lime, " alone or combined with the hyposulphite of the same base." The vegetable fibres are immersed in a solution of the bisulphuret of calcium in the proportion of " one gallon at 15° Twaddle to " every twenty pounds weight of the vegetable fibre," " and " allowed to remain therein for about twenty-four hours." " I " then remove the fibres from the solution, and dry them in the " open air for about twenty-four hours, after which I wash them " well in clean water, when the fibres will be ready for bleaching." " The bleaching may be performed by any of the ordinary " methods."

[Printed, 3*d*.]

A.D. 1854, July 22.—N° 1618.

JOHNSON, WILLIAM.—(A communication.)—(Provisional Protection only.)—" Improvements in the treatment, cleansing, " and dyeing of fibrous and textile materials." " For the pur-

" pose of cleansing the treated materials and discharging coloring " matter, insoluble carbonates, such as carbonate of lime, for " instance, are used. To form this alternate treatment with " solutions of different temperatures of hydrate or other soluble " salt of lime and alkaline carbonates are used; for mordants " hypochloride and muriate of alumina, salts of magnesia, picric " and formic acid, and their salts are used. For sizing fibrous " materials, paper, yarn, and cloth, salts of magnesia, stearate, or " margorate, and oleate of alumina are employed."

" In dyeing or printing madder or Turkey red the following ingredients are used:—Nitric, picric, carbolic, and mimotannic " acids, and their salts; also glue, gelatine, chondrine, albumen, " hypochloride, and formiate of alumina, salts of magnesia, ammoniacal and butter soaps; also combinations of madder, with " acetic acid or with alkaline hydrates or carbonates; or turpentine, naphtha, and alcohol. In dyeing with indigo, sulphate " of indigo is decomposed with salts of lead, lime, barytes, or " strontia, by which means are obtained acetates and other solutions " of indigo. For fixing colors vegetable casein or lacterine, such " as is found in pease or beans, is used; also soluble silicates; also " a combination of tannin with animal gelatine."

[Printed, 3*d.*]

A.D. 1854, July 22.—N° 1619.

DILKS, James.—(Provisional Protection only). "The application of printed or painted linnen, cotton, or other textile fabric, " either plain or ornamental, for binding more effectually than " heretofore packets or parcels of lace, hosiery, or other articles." " I propose to use oil or water colors, or other glutinous substances, applied either by hand labour or machinery to linnen, " cotten, or other textile fabrics, for the ornamentation thereof, " for the purpose above described."

[Printed, 3*d.*]

A.D. 1854, July 24.—N° 1622.

JOHNSON, John Henry.—(A communication from Williot, Charles Louis Alexander.—" Improvements in the preparation " of silk." This invention consists in " the general construction, " arrangement, and combination of apparatus for effecting the

" warping and preparation of silk;" in the mode of " warping " silk from the cocoons direct;" in the "peculiiar construction " and arrangements of 'heck;'" in "the warping of the silk " threads, either in gangs or half gangs;" in "the application " and use of revolving vanes or blades situated inside the warping " mill for the purpose of drying the silk threads;" in "the pecu" liar construction and arrangement of spool;" in "the appli" cation and use of the improved spool, in the ungumming or " dyeing of silk threads;" in "the application and use of the " improved spool, for the formation of threads of raw untwisted " silk or organzine obtained direct from the cocoons;" in " the " application and use of the imitation organzine;" the applica" tion of the improved form of spool to the formation of silk and " wool or silk and cachmere threads, or threads composed of silk " and combined with any other fibrous materials;" " the application " of the imitation organzine to the formation of silk and wool " threads combined;" and,

Lastly, " the system or mode of dyeing or ungumming the silk " whilst on the improved spool, whether such operations be " effected with or without the aid of a vacuum." By dyeing the silk whilst on the improved spool it does not become " agglomerated " nor formed into a compact mass." " For " this process the larger or moveable wires are removed from the " spool, and the silk left quite loose on the (other smaller) wires; " in this state it is subjected to the dyeing process," the spools being gently turned to prevent unevenness.

[Printed, 11*d*.]

A.D. 1854, July 26.—N° 1648.

DELAYE, Pierre Victor.—(Provisional Protection only.) " Im" provements in printing blocks." This invention consists in forming the blocks used for printing calico, paper, and similar surfaces of moveable pieces, type, or paralellopipeds (of various forms in cross section), instead of carving or otherwise making the same, as has been done hitherto. For this purpose " I fill a " frame or open box of any suitable shape (square is preferred) " with parallelopipeds, some of which are longer than or pro" trude above the others, so as to form one or more colours of the " pattern or design, the latter having to be represented on a card, " similar to embroidery pattern paper, for the purpose of reading it " therefrom, which is done in a manner similar to setting type."

[Printed, 3*d*.]

A.D. 1854, July 28.—N° 1663.

GUILD, Adam, and PENDLEBURY, John.—(Provisional Protection only.) "Improvements in apparatus for scouring or "bleaching." "The chief features of these improvements are "that the scouring liquid is heated in a vessel or boiler distinct "from the bowking keir, but connected therewith by a pipe "leading from the top of the boiler to the upper end of the keir, "and another pipe from the lower end of the keir to the bottom "of the boiler. After the fabrics or materials to be scoured are "deposited in the keir it is hermetically closed, and heat is applied "to the boiler. The expansion of the liquid necessarily causes "it to rise through the upper pipe and pass through the keir, "whence it returns to the boiler by the lower pipe."

[Printed, 3*d.*]

A.D. 1854, July 31.—N° 1688.

BRIDSON, Thomas Ridgway.—"Improvements in preparing "cotton for manufacturing purposes." "This invention consists "in improving the colour of cotton while in certain stages of "manufacture by bleaching" and soaping. "The cotton to be "operated upon having been cleansed in the usual manner" "is "formed into a lap." "I then place eleven or any other convenient number of these laps in a closed vessel; care should be "taken that the laps do not compress each other when in the "vessel. The upper part of the vessel is furnished with a perforated plate, and the lower part has a false bottom which is "also perforated." The air is then expelled from the vessel; this "may be accomplished by boiling, or admitting steam through a "pipe," or otherwise. "The first process is to saturate the laps with a chlorine solution," which may be effected by pumping up the solution and causing it to rain down on the laps for two or three hours through the small perforations in the upper plate. "The chlorine solution is then removed from the laps by admitting clean water which is pumped as before. The laps are then "treated in the same manner with dilute muriatic or other acid," and again washed with water. This process may be repeated as often as requisite. The laps may then be dryed, or they may be previously submitted to the process of soaping, or to a weak solution of carbonate of ammonia. The laps may be dried by passing them through squeezers and over a drying cylinder; they may be enclosed between two endless webs of calico or other fabric.

[Printed, 6*d.*]

A.D. 1854, August 5.—N° 1720.

CUNNINGHAM, JOHN.—"Improvements in the preparation "or production of printing surfaces." This invention relates to making patterns for or upon blocks or rollers by means of depressing by mechanical means certain pins or types contained in a frame in mass; and the Patentee claims as novél, "first, the "general arrangement and construction of machinery, apparatus, "on means to be used in the preparation or production of printing "surfaces. "Second, the system or mode of producing patterns "on surfaces or matrices, composed of types or pins built up into "a regular mass or masses, wherein a depressing apparatus, fur-"nished with prickers or depressors, and corresponding finger "keys or stops, and arranged similarly to the well known 'piano' "punching machine for perforating jacquard cards, is used for "depressing portions of the pins or types, in accordance with a "set pattern." "Third, the system or mode of pricking, mark-"ing, or producing patterns upon plane or other surfaces by the "aid of an apparatus similar to the 'piano' punching machine "for perforating jacquard cards, such apparatus being furnished "with prickers, markers, or depressers, and corresponding finger "keys or stops, and being depressed upon the surface to be marked "by means of a treadle, or other mechanical equivalent." "Fourth, the system or mode of producing patterns on surfaces "or matrices composed of types or pins built up into a regular "mass or masses, and of pricking, marking, or producing pat-"terns upon plane or other surfaces, wherein the operator is en-"abled to act upon eight or other convenient number of points "or units of the pattern at each stroke by means of a depressing "frame worked by a treadle, and furnished with prickers or de-"pressors, and finger keys or stops."

[Printed, 4*d.*]

A.D. 1854, August 17.—N° 1801.

KOEFFLER, LOUIS CHRISTIAN.—"Improvements in extracting "coloring matter, also applicable for extracting size or glue from "animal substances."

The Patentee claims, " firstly, as applied to the purposes above " set forth (in specification), the application of two or more " vessels connected together in such a manner that the extract can " be transferred from one to the other at pleasure by steam or " other pressure, and can be discharged into cisterns placed in any " convenient situation." " Secondly, the construction of keir or " vessel above described, furnished with a stand pipe (as shewn), " and by which arrangement the heated fluid is caused to cir- " culate." " Thirdly, the mounting the vessels or keirs either " singly or in series upon hollow axes, such axes affording chan- " nels for the passage of steam to the upper and lower parts of " the keirs or vessels, and also for the admission of water." This apparatus consists of one or more keirs made of " copper, and are " provided with covers which may be removed at pleasure, and " suitably secured;" " at the lower parts of the keirs are gratings " (false bottoms) which support central stand pipes, provided at " top with valves and bonnets after the manner of an ordinary " bleaching keir. The keirs are supported in bearings by means " of hollow axes formed upon pipes with the interiors of which " the hollow axes, &c., communicate. The axes are situated in " stuffing boxes fixed within the bearings and are provided with " pipes communicating with their interiors; by this arrangement, " therefore, the keirs and their pipes may be turned independently " of each other upon the axes and at the same time retain a water- " tight communication with the pipes." " Pipes and taps are also " so arranged that the liquor or steam may be thrown on the " surface of the substance operated upon, or underneath it at " pleasure, and the liquor may be wholly discharged from one " keir and thrown into the other."

[Printed, 10*d.*]

A.D. 1854, August 30.—N° 1899.

LEHUGEUR, Louis Pierre, and UTTINGER, Michel.—(Provisional Protection only.) " Improvements applicable to machinery " for printing fabrics." " The color block or table is made elastic, " by means of springs, and is covered with a cloth, so that at each " stroke of the printing block fresh color will be supplied, the ap- " paratus being so arranged that the cloth and the color which is " contained in a reservoir or basin shall be kept together; and

" when the printing operation is finished and the color is required " to be changed, the colour cloth can be scraped, and the cover " of the color reservoir moved forward by a single stroke, and the " color reservoir closed, so that the color cannot dry by evaporation " or exposure to the air, as in the ordinary method of working, in " which color is found to dry in the brushes on the printing frame " and in the vessels." By this means the " false color vessel " is done away with, and a saving effected in labour and colour.

[Printed, 3*d.*]

A.D. 1854, September 2.—N° 1923.

KAY, Richard Dugdale.—" Improvements in machine printing." " These improvements relate to that part of the material " used for machine printing called the lapping, and consists of " using a series of thin cotton fabrics, or fabrics of linen warp " and cotton weft, coated on one side with india-rubber cement. " These cemented fabrics are folded face to face, with the uncemented surface outside; one of such folded fabrics is then " wound on to the cylinder (the bowl) to the thickness required. " The pressure in the act of winding will cause the cement to " permeate through every fold of the fabric, and the whole will " become one solid mass."

[Printed, 3*d.*]

A.D. 1854, September 5.—N° 1939.

TRAPPES, Henry.—(A communication.)—(Provisional Protection only.) " A process for the preparation of leather, to be used in the " manufacture of a new flock, and for the manufacture of the same, " to be used and applied in lieu of flock made from pounded or " ground wool and woollen materials, heretofore commonly used " in the manufacture of painted, printed, and dyed decorating papers, carpets, oilcloths, and other things; and also to be used as a " paste or pulp for the manufacture of all kinds of paper, parchment, " and pasteboard, of toys, of ornamental and other picture frames, " of mouldings, architectural and sculptural ornaments, and other " things." The process consists in grinding leather to very fine powder by means of grinding mills. The powder so formed may be bleached and dyed.

[Printed, 3*d.*]

A.D. 1854, September 11.—N° 1979.

WORRALL, James, junior.—(Provisional Protection only.) "Im-
" provements in the method of treating and printing such fustian
" goods or fabrics as are called 'cords and thicksets' or 'vel-
" veteens.'"

"My invention consists simply in printing such goods or fabrics
" as are above named immediately after the process of 'cutting'
" them, in contradistinction to any other method of treatment as
" hitherto employed or practised."

[Printed, 3*d*.]

A.D. 1854, September 19.—N° 2021.

CUNNINGHAM, John.—" Improvements in the preparation
" or production of printing surfaces." This invention relates to
improvements on inventions for which " James Balie Graham has
" obtained British Letters Patent, dated 6th February 1854,"
" and for which I have obtained British Letters Patent, dated
" 5th August 1854," and consists, in the first place, in causing
" rows of pins or types to stand up above the general level, along
" the borders or edges of the built up mass of pins or types used
" in producing the printing surface, so that the cast which is
" taken off the surface of the types may have its edges defined
" and shaped by such raised rows, in order that two or more
" casts of the same or of different patterns may fit into each other
" with accuracy. This is effected by depressing the body of the
" types slightly below the types at the extreme edges."

" Another improvement consists in making the pattern type of
" two or more kinds of metal, or so as to present different ap-
" pearances to the eye, as well as in arranging these in squares or
" in regular compartments of any convenient form, each compart-
" ment being made up of types of one kind. This arrangement
" is for facilitating the reading off and transferring the pattern
" from the original design to the blocks or types."

" A third improvement relates to the mode of taking a cast off
" the surface of the types after certain of the types have been
" depressed to form the pattern. For this purpose two plates of
" peculiar construction are fitted upon that side of the frame upon
" which the metal or other material for forming the actual printing
" surface is to be cast. These plates are made to draw apart, and

" are so constructed as to leave a winding zigzag or other shaped " groove along their meeting or junction edges, immediately over " the mass of pattern types. One of the plates may be of smaller " size, the two being made to fit accurately together by means of " wedge or dovetail grooves, and by pins placed at suitable " points." The metal in casting finds its way through the groove to the surface of the pattern types. "The edges of the plates " which form the groove are bevilled, so as to make the feather " thicker at the outer edge, which enables the plates to take a firm " hold of the casting; and this casting is forced off the face of the " types by means of screws working in the plates or otherwise." " It is preferred to cause the melted metal to enter upon the face " of the pattern types at the lower side for the time being, so that " in filling up the matrix it gradually rises upwards, expelling the " air before it."

"A fourth improvement consists in applying the matrix of " pattern types to the production of indented metallic or other " surfaces resembling engraved surfaces." For this purpose the matrix has " metal cast upon the opposite side, so as to prevent " the raised types (the surface of which may be engraved with " devices) from sinking when pressure is applied." "The matrix, " thus formed into a solid block, is used as a die for indenting " surfaces (flat or circular) by means of great pressure."

And, lastly, improvements by means of substituting for the prickers, actuated by the " piano jacquard card cutting machine," for marking or setting out patterns upon wooden rollers, surfaces, &c., " wires, which, on being entered into the wooden surface, are " cut, so as to leave short lengths in the wood to form the actual " printing surfaces." "The mode by which these wires are " depressed is similar to that for depressing the prickers."

[Printed, 1*s.* 4*d.*]

A.D. 1854, September 26.—N° 2066.

CORNIDES, Louis.—"A new mode of manufacturing a trans- " parent medium, plain, printed, and coloured, of gelatine in com- " bination with other substances." The Patentee claims, " firstly, " the coating glass with gelatine combined with sugar and water, so as to make the same adhere to the glass and be transparent, nd be capable of being colored with the transparent colors,

" according to my former invention." The edges of the gelatine may be caused to adhere better to the edges of the glass, by moistening those parts of the gelatine with "nitric acid" diluted with ten parts water. The surface of the gelatine (when moistened) may be "impressed with letters or drawings" by the transferring process from the drawing on fine thin paper, or an elastic composition. Such gelatine surfaces may be "coloured according to my patented invention, bearing date 26 Nov., 1853."

" Secondly, the process of coloring the gelatine with water " colors, by covering the same first with the waterproof medium, " and then removing such medium." The "waterproof medium" may be composed of "one part of wax" and "four parts of dry-" ing oil;" or of "oiled paper;" or paper coated on one side with the above "wax composition, or with gutta percha, or india " rubber solutions, cut out to the required form, and applied to " the gelatine slightly wetted for that purpose."

" Thirdly, the combining gelatine and collodium or other trans-" parent varnishes as a transparent coating for glass." " Fourthly, " the combination of gelatine with collodium and other trans-" parent varnishes as a separate transparent medium; and, lastly, " the making, impressing, and coloring such transparent medium " by the processes herein-before described."

A separate transparent medium may be prepared thus:—" A " clean surface of glass or other polished surface is first coated " with collodium, and when this coating is dry it is then " coated over with gelatine, as before mentioned, and sub-" jected to the subsequent processes above described, except that " of moistening the edges with the dilute nitric acid; and when " these processes are completed, the entire coating is drawn off, " by raising it at the edges from the surfaces on which it has been " laid."

[Printed, 4*d.*]

A.D. 1854, September 26.—N° 2070.

CLAYTON, Thomas, and HARROP, Robert.—" Improve-" ments in ornamenting wood, and in the machinery or apparatus " connected therewith." These improvements consist principally in the "transferring of the designs of the grainings or mark-" ings of the choicer woods, as mahogany, rosewood, oak, &c.,

" from engraved heated metallic rollers (or flat dies if preferred) " to surfaces of common or cheaper woods, such as deal or pine, " whereby a close imitation of such choicer woods is produced; " and also the transferring of other ornamental designs from en- " graved heated metallic rollers (or flat dies, if preferred) to the " surfaces of wood, as well as the machinery or apparatus for the " above purposes." The wood to be grained or figured is caused to pass between the printing roller, on which the design is in relief, and the plain pressure roller, to which pressure is given by suitable levers and weights. The printing roller may be heated internally with fire or gas. If a die be used "for the production " of scroll work, borders, and other devices, it is placed "on the " end of a long bar or block of iron," the opposite end of which is heated in a furnace, and " by means of the intervening space of " the bar the die may always be kept at a nearly uniform heat; " by depressing the hot die the design is transferred to the wood " to be operated upon, which may be at once removed, and the " operation continuously repeated."

[Printed, 9*d*.]

A.D. 1854, Sepember 26.—N° 2071.

SINCLAIR, Honourable JAMES, commonly called Lord BERRIEDALE.—" Improvements in treating, cleansing, and ornamenting " paper and other surfaces." This invention consists, " first, in " the application and use of rollers or rotating parts, carrying " strips of caoutchouc or other soft and elastic substances for the " purpose of treating, cleansing, ornamenting, finishing, and " polishing paper, woven fabrics, leather, yarns, threads, and other " surfaces by the frictional contact therewith of the caoutchouc " composing such rollers." " Second, in the system or mode of " cleansing or removing coloring matter from paper and other " surfaces by the action of rotating caoutchouc or elastic edge or " surface pieces." The rotating parts or rollers with caoutchouc slips, are composed of wood or any other suitable material, into the peripheries of which are inserted the edges "of a number of " slips of vulcanized caoutchouc or other soft or elastic material," As the roller or rollers revolve at a high speed, the slips of caoutchouc act as flappers or beaters and polishers of the material or colour acted on. Such polishers may be applied to remove superfluous colour powder from the surface of printed or coloured fabrics, paper, leather for book covers, &c.; to the finishing of paper and other surfaces, and to thread, thereby improving their general effect. Woven goods and ladies dresses may also be similarly treated.

[Printed, 1*s.* 4*d.*]

A.D. 1854, October 2.—Nº 2110.

PARTINGTON, William.—(Provisional Protection only.) "Im-" "provements in bleaching." "In carrying out the invention, " "the materials to be operated upon are first washed in pure " "water; in the second place they are 'soured' by means of " "muriatic acid, which may be used either hot or cold, and the " "acid is afterwards washed out of them; thirdly, the materials " "are boiled in a mixture of rosin and alkali for about twelve " "hours, being again well washed thereafter; fourthly, the ma-" "terials are again 'soured' by means of muriatic acid, hot or " "cold, being thereafter again washed; fifthly, the materials are " "again steeped in a solution of chlorate of lime for about four " "hours; and, sixthly, they are again soured by means of mu-" "riatic acid, hot or cold, and finally well washed in pure water.

[Printed, 3*d.*]

A.D. 1854, October 2.—Nº 2112.

HARE, Charles Bowles.—(Provisional Protection only.) "An " "improved mode of manufacturing printing blocks." "This in-" "vention is intended to faciliate the operation of grooving printing " "blocks (used in the printing of floor cloths), and for this pur-" "pose I provide a series of rotary saw blades, which I secure to " "a common shaft, setting them at such a distance apart thereon " "as will insure a proper space between the saw cutter. Under " "rotating saws thus arranged I pass the blocks to be grooved, " "and when the grooves have been thereby cut in one direction, " "I turn the blocks, and again present them to the action of the " "saws, which will now cut across the grooves first made, and " "leave the required projections on the printing face of the blocks. " "The block may then be finished in the usual manner."

[Printed, 3*d.*]

A.D. 1854, October 4.—N° 2134.

CROSSLEY, Thomas.—(A communication.)—" An improved " mode of manufacturing printing blocks." This invention consists in the following " economical and expeditious " method of applying gutta percha to a wooden block, for the purpose of forming printing surfaces. " I take a block of maple or " other suitable wood, and cover its surface with fine saw kerfs " (cuts) running at right angles to each other, and sinking about " ½ inch more or less below the surface; this divides the sur- " face of the block into minute quadrangular prisms. These " prismatic pieces are then removed from those portions of the " block not covered by the figure or design, and are left remain- " ing upon those portions which are covered by the figure, in a " manner similar to that adapted for making blocks for printing " floor cloths. The gutta percha is then softened in the customary " way, and laid upon a flat surface. The block, prepared as above, " is then pressed upon the gutta percha, by which means the " latter is forced into the interstices, between the minute prisms " which compose the figure. The prisms are thus bound solidly " and firmly together, and a surface is produced, having all the " absorbent qualities of the gutta percha, and all the strength of " the wood itself."

[Printed, 6*d*.]

A.D. 1854, October 7.—N° 2156.

DE MÉRITENS, Jean Baptiste Seraphin.—(Provisional Protection only.) " Improvements in the mode of dyeing cotton, " flax, and other fibrous substances and fabrics generally." " The distinctive features of my invention, to which I give " the name of 'fixed atmospheric dye'" consist "in uniting " all the ingredients in one bath, the cold immersions, the " employment of the water from springs or wells, the exact- " ness of the proportions of the quantities used, the repeated " immersions, and the drying in the open air and in shade. " The atmosphere acts as a re-agent to fix the color." To dye black take " three quarts of well water," "campeachy wood, " two ounces; gall nuts, two ounces; copperas, one ounce and a " half; verdigris, half an ounce. The whole is to be boiled until " the bath has been reduced by evaporation to about two quarts,

" and then allowed to cool. The goods are to be repeatedly im-" mersed in the bath when cold, and dried in the open air in the " shade, and treated as above explained."

[Printed, 3*d.*]

A.D. 1854, October 7.—N° 2157.

ROBERTS, THOMAS, and **DALE**, JOHN.—" Improvements in " obtaining and treating extracts from certain dye woods, and in " apparatus for obtaining such extaacts." " These improvements " relate to extracts obtained from logwood, peach, Brazil, sapan " or other woods requiring similar treatment, and consist, first, of " several vessels (of a suitable form and capable of being closed " steam tight at the top.) Being charged with the material from " which the extract is to be obtained, water is supplied to the first " of the series at the upper part thereof, after which steam is " admitted to the surface, and the fluid is thereby driven down-" ward and discharged into a vessel below, a tap having been " opened for that purpose. The extract thus obtained is then " pumped up into the second vessel of the series, and in like " manner forced through the material into the tank below, from " whence it is again pumped up into the third, and so on, through " as many as may be used, until an extract of the required con-" centration is obtained; this having been accomplished, we pass " water as above described through the whole series, and reserve " it for the commencement of operations upon fresh material as " above described; by this method we are enabled to obtain a " required concentration of extract without evaporation." Secondly, this invention relates to submitting such fluid extracts (however obtained) " to the action of air drawn or forced through " them." " In order to effect this, we employ a vessel of suitable " material, constructed with a central pipe, the lower end of which ' is provided with branches, having numerous perforations; " through this central pipe we propel air, by means of a pump or " other apparatus, which thereby becomes distributed in the fluid " and forced through it." The duration of this process will vary, and " must be regulated by the experience of the operator." Thirdly, this invention relates to the application of " galvanized " iron," or " iron otherwise coated with zinc," or " zinc plate " in the construction of vessels " used for obtaining such extracts."

[Printed, 3*d.*]

A.D. 1854, October 21.—N° 2251.

GREEN, William, and PICKETT, Joseph.—" Improvements " in treating or ornamenting textile materials or fabrics and " paper, and in machinery or apparatus for effecting the same." These improvements consist, first, "in producing upon continuous " lengths of paper effects similar to those which on silk goods are " designated 'watered' and 'shot,' by means of printing [by " rollers or blocks furnished by inking rollers] with gold size or " other adhesive matter a series of fine lines, either curved or " straight, and applying thereto metallic powder or other dry " colours." "The paper may afterwards be embossed."

The appearance of "jacquard work" may be imitated by printing a series of lines and dots, corresponding in size, &c. to those portions of the warp or weft which are thrown up by the weaving operation upon the surface.

The material may be printed with a substance which will " become adhesive by the application of heat or moisture. "The " desired pattern or design may then be produced in metal or in " color upon materials so printed on the application of heat or " moisture upon those portions only where the said metal or color " is required." The metallic powder may be applied to the material by means of a "cold plain roller" covered with cloth, or by an engraved roller.

" Watered " effects may be produced by passing the paper, &c. under pressure between ribbed surfaces; two endless bands of india-rubber being preferred for that purpose. Thin textile fabrics may be covered on both sides with flock, or other fibrous dust, by first saturating them with suitable adhesive matter, then applying the flock, &c. in the usual way, and then pressing the material between rollers.

The Patentee's machine for applying the flock or dust to the fabrics, paper, &c., and thereafter printing them with colors, consists of an engraved roller suitably supplied with adhesive matter which prints the desired pattern. The material so printed passes in an inclined direction under a box with a perforated bottom containing the flock, which is vibrated by a cam. A series of rods are caused by means of cams to beat the fabric with the flock on it. If the material requires to be perfected by the further application of colors, it is then caused to pass through a roller printing machine. When metallic or other expensive colours are to be printed the apparatus is modified by the addition of revolving brushes.

This invention consists, lastly, "in lackering metallized fabrics " or materials and paper by means of rollers" "working in a " trough containing lacker" "or by other mechanical means."

[Printed, 11*d*.]

A.D. 1854, October 26.—N° 2285.

FONTAINEMOREAU, Peter Armand le Comte de.—(A communication from A. and H. Six.)—"Improvements in bleaching, " dyeing, and preparing hemp and flax to be spun." The Patentee claims, "first, the submitting peeled hemp to fermen- " tation by means of hot water, for softening and separating " the fibres." The heat employed is "about twenty-five de- " grees Reaumur during thirty-six to seventy hours." "Se- " condly, the contrivance for, and mode of, bleaching and " dyeing flax and hemp." The chemical processes employed for these purposes "are the same as those generally employed;" but the matters employed to be bleached or dyed are hung on " wooden bars," attached to a "square frame," "so that the " ends should hang down equally on both sides." "The frames " charged with fibrous matters are moved by means of a crane " or lever, by which they are raised and lowered alternately " into the bleaching, dyeing, or washing baths, until the materials " have reached the requisite degree of preparation." "Thirdly, " the preparing hemp and flax to be spun, after they have been " bleached or dyed, by submitting them to beating, and to an " operation analogous to the processes employed for peeling " flax."

[Printed, 5*d*.]

A.D. 1854, October 31.—N° 2313.

VORSTER, Charles.—(Provisional Protection only.) "Im- " provements in the manufacture of ribbons." "Instead of " weaving the textille fabrics intended for ribbons in two or " more colours, as heretofore done, I use woven fabrics or " felt in the piece, or of the collective breadths of many rib-

" bons, and print or otherwise provide them by means of printing " block, cylinders, or other convenient means with pattern or " design in two or more colours; this being done, the goods " may be further ornamented by pressing, stamping, or punching; when the desired design has been produced on the " fabric, the latter is then cut into ribbons of a breadth corresponding with the pattern."

[Printed, 3*d.*]

A.D. 1854, November 6.—N° 2,345.

WALLACE, James, junior.—" Improvements in zincographic " and lithographic printing." These improvements relate " to " that class of zincographic and lithographic printing machines or " apparatus in which a cylindrical printing surface is employed " for printing continuous pieces or webs of material;" and consist, first, in " the general arrangement and construction of " zincographic and lithographic printing apparatus."

" Second, in making the printing roller of zincographic cylinder " printing machines of solid metal, the centre of the roller being " of cast iron or other metal, whilst the outer portion is of zinc, " but of such a thickness as not to be affected by the working " pressure."

" Third, the system or mode of moistening the surface of zincographic printing rollers by means of a saturated roller and pad, " the former applying moisture to the roller, and the latter subsequently taking away superfluous moisture." The damping roller covered with " any suitable material capable of holding or " absorbing a considerable supply of water," is caused to revolve " in contact with the printing roller, and the superfluous moisture " is taken off by means of a stationary padd" pressed against it. This apparatus is placed on moveable brackets and can be shifted into and out of contact by means of " a pair of eccentrics."

" Fourth, in the system or mode of granulating or preparing " the surface of zincographic printing rollers, by means of a " rubbing surface, supplied with emery or other powder, and " made to traverse from end to end of the roller whilst the latter " is made to rotate, the two being connected by suitable gearing " and being actuated together," The emery may be placed in a box, the bottom of which, having an open slit, is made to fit, and is placed upon the zinc roller which is caused to rotate. The rotation of the roller causes, by means of a screw, the emery box to traverse from one end to the other. The whole is held in suitable light framing.

The printing machine itself consists, generally, of a pressure bowl, printing roller of zinc or stone placed over, and the inking rollers placed above; all contained in a suitable frame, and driven by gearing."

[Printed, 1*s.*]

A.D. 1854, November 8.—N° 2367.

McDONALD, Allan and **McINTOSH, Alexander.**—"Improvements in machinery for stretching and smoothing cloth or " woven fabrics preparatory to or in the course of being printed." These improvements consist in "the application to any machine " for printing woven fabrics, of a self acting tenter, for stretching " and smoothing the cloth before it is printed, or while it is in " the act of being printed, in which such stretching or smoothing " is performed by the action of pulleys placed at the ends of a " drum or of an assemblage of drums, and rotating on the same " shaft with the drums, but round axes of rotation oblique to " that shaft." The self-acting tenter is placed in the position of and acts as an improved substitute for or auxiliary to the usual " stretching rails" "by the aid of which the stretching by hand " will be superseded." The cloth on passing from the cloth roll to the printing roller to be printed is caused to pass round a drum the width of which may be adjusted to suit the width of the cloth; at each end of this drum is a pulley the periphery of which is covered with some suitable substance, such as card, and which is placed on the same centre as the drum, but their axes, placed obliquely. The edges of the cloth are caught by these oblique pulleys while they are in their narrowest position, and, passing round with them, the cloth is thereby stretched and delivered on to the printing bowl at the point of revolution where the obliquity produces the greatest width.

[Printed, 10*d.*]

A.D. 1854, November 9.—N° 2373.

PRETSCH, Paul.—"Improvements in producing copper and " other plates for printing." The Patentee claims "the peculiar

“ adaption of the photographic process to the production of printing
“ plates in copper and other metals and materials, as
“ described.” This may be effected as follows:

A solution of “glue” and “nitrate of silver is added to a solution
“ of glue,” and “iodide of potassium.” A plate “of glass,
“ silvered copper, or other suitable plate,” is coated with the
above mixture and dried. “The print or other subject “to be
“ copied being laid on the prepared coated surface, they are to be
“ placed in a photographic copying frame, and exposed to the influence
“ of the light. After a sufficient exposure, the frame must
“ be opened, the plate removed, and washed either with cold
“ water or a solution of borax or of carbonate of soda, as may be
“ necessary. The photographic picture or design will be found
“ to appear in relief, and when sufficiently developed must be
“ washed with spirits of wine. The surplus moisture is to be removed,
“ and the plate covered with a mixture of copal varnish
“ diluted with oil of turpentine. After some time and before becoming
“ quite dry, the superfluous varnish must be removed
“ with oil of turpentine, and the plate immersed in a very weak
“ solution of tannin or other suitable astringent. During this part
“ of the process the plate must be carefully watched, and removed
“ as soon as the picture or design is considered sufficiently raised;
“ it is then washed in water and dried. In this state the plate is
“ ready to be copied. This may be effected by the customary
“ methods of rendering the coating conducting, and placing it in
“ the electrotype apparatus, or by making a mould from the
“ coated plate, which, being subjected to the electrotype process,
“ will also afford the required printing plates; or sometimes the
“ copying may be done by the stereotype or other like process.

“ Or, secondly, I proceed by employing a solution of gelatine,
“ prepared with chemicals, as already described, with which I
“ coat the plate, and operate for copying, as first detailed; but
“ after washing with spirits of wine the plate must be dried, and
“ in due time the picture or design will appear sunk, like any engraved
“ plate. The production of printing plates therefrom is
“ to be proceeded with as before described. Or a third process
“ may be adopted by applying printing ink to the coating of the
“ plate, prepared as above described, taking the impression upon
“ paper laid thereon which impression or print can be transferred
“ to zinc or stone, and printed by the usual methods. In-

" stead of the iodide of potassum, the ammonium bromide, or " ammonium iodide may be employed, as they shorten the time " of exposure, and likewise the copy can then be obtained by the " photographic camera instead of the copying frame."

[Printed, 3*d*.]

A.D. 1854, November 10.—N° 2387.

LOYSEL, Edward.—" Improvements in obtaining infusions or " extracts from various substances." These improvements consist in " obtaining infusions or extracts from various substances " (excluding tea) by causing water or other liquid to ascend by " hydrostatic pressure through the mass of material to be operated " upon, and, after properly macerating the same, to carry off the " useful extractive matter from the upper part of the macerating " vessel," and may be applied to " extract the coloring matter " from dye woods; the aromatic and nutritious elements from " coffee; the sacharine matter or juices from beet root, or from " malt, barley, or grain; and to obtain infusions or extracts of " hops and other vegetable substances, as well as other matters." The material to be operated upon may be placed in a " vessel in " layers of convenient thickness, the several layers being placed " upon perforated plates which will divide them one from the " other." On the top of the pulverized material is placed another " perforated plate, which will prevent the upper layer of the mass " from mixing with the liquid extract." The water or other liquid may be heated in an elevated boiler and conducted by means of a pipe to the under side of the lowest perforated plate, and be caused to ascend, by hydrostatic pressure, through the layers of pulverized material, into the upper part of the vessel, whence it may be drawn off.

[Printed, 7*d*.]

A.D. 1854, December 2.—N° 2537.

GANTERT, Longin.—1. Improvements on the tramping and squeezing machine for yarns, invented by the present Patentee, and registered June 28, 1851, the machine being intended " to " save the hand work by passing the yarn in the different liquors " or mordants, and principally the liquors of the Turkey red " dyers, and for squeezing of washed yarns and threads." In its original form the machine consists " of a vessel like a barrel, of

" which top and bottom are cut out, but so that only a border of
" a foot in height remains. This vessel or drum, provided outside
" with a circle of teeth, lies horizontal upon two pulleys, and
" receives a rotary motion by a small spur wheel, fastened on the
" same shaft of one of them. In the frame which bears the pulleys
" and encloses the drum is placed a tramper [or foot for tread-
" ing or pressing upon the yarn]," to which is given, " by means
" of a rotating cranked axle, a movement up and downwards, so
" that it may descend to near the lowest part of the inside of the
" drum; and further, a squeezing roller is applied, which is
" almost as long as to occupy the whole length between both the
" borders of the drum; it is placed higher than the tramper, and
" is pressed against the drum by joined levers." The lower part
of the drum is kept nearly filled with liquor by means of a pipe
from a supply tub. "The drum is put in slow rotary motion, the
" tramper in a much quicker one, and a worker is laying in the
" drum hank after hank;" "each hank is laid in so that it
" touches both borders of the drum, and is put close together
" that it forms one even layer." " It is now stamped under the
" tramper sufficiently, and thereby wetted; afterwards it is
" squeezed under the squeezing roller, which is caused to revolve
" in contact with the yarn and drum."

The improvements comprise " an apparatus for squeezing the
" yarn equally;" " an apparatus to prevent the sliding back of the
" yarn from the squeezing rollers;" "an apparatus for lifting up
" the yarn in the liquor;" "a better way of pushing out the yarn
" of the machine;" "the mixing of the liquor squeezed out of the
" yarn with the new liquor continually flowing in;" " an apparatus
" for stirring up and elevating the liquor to the necessary height
" that it runs through the pipe into the [mixing] vessel;" "a new
" arrangement of the gearing;" and, lastly, using "worm springs"
below the bearings of the tramper, and constructing the tramper of
" a number of metal bars joined together diagonally," " and bent
" on the under side undulatory."

2. " Yarn-washing machine, through which the yarn travels or
" runs from one end to the other during the washing, and is clean
" by one passage, whilst the water flows the contrary way." It
" consists of two racks (toothed rods) joined parallel by cross
" bars or stretchers, resting upon four segments of wheels, so that
" it is possible to give it a motion to and fro along a water cistern

" of considerable length, in which the water is continually renewed. " Over these two racks rollers move slowly during the coming and " going movement; these rollers are provided on both ends with " pinions, gearing into the racks, and serve to carry the yarn " which is hung up on them; the latter, as it plunges by the " passage over the racks into the water of the cistern, is washed, " and arrives clean on the opposite end."

3. " Mechanical dye boiler," consisting of a number of poles or sticks, upon which the yarn is carefully hung, "and which are put " on both ends on the peripheries of wheels or disks at equal " distances, fastened in the centre to a horizontal lying axle; this " axle is hollow, and between the two disks of considerable " diameter, so that it may be used to heat the dye bath by steam, " and for the purpose of occupying much space, because otherwise " the quantity of the necessary dye bath would be too great. " This apparatus is placed in a dye boiler of a suitable form, and " put in rotary motion during dyeing; moreover, each yarn stick " or pole is also put in rotation round itself, once in the one, once " in the contrary direction."

[Printed, 8*d*.]

A.D. 1854, December 2.—N° 2545.

LISTER, John.—(Provisional Protection only.) " Improvements " in the treatment or preparation of dyeing or colouring mate- " rials." The material, as " lime wood," " logwood," munjeet," and other substances, " is soaked in diluted sulphuric or hydro- " chloric acid (or other acids), and after being washed for the " removal of the free acid, the dyeing matter is then applied in " the ordinary manner." " The colours produced from materials " treated in this way, are much more durable than those ob- " tained from untreated matters."

[Printed, 3*d*.]

A.D. 1854, December 6.—N° 2564.

MARTIN, Albinus.—(A communication.)—" Improvements in " the production of indigo dye colours in dyeing and printing " textile fabrics and fibrous materials." These improvements consist in submitting the fabrics or materials to be dyed or printed to " baths, containing respectively a salt of manganese,

" or piment, and caustic alkali, and then to a hot ash or alka- " line indigo vat." "The fabric or fibrous material to be " dyed or printed must be bleached in the usual manner. When " the fabric, &c. is to be dyed only, I pass it through a bath " of water, holding neutralized salt of manganese, or any other " salt of manganese, in solution or suspension, of a strength " of from 1 to 5 Twaddle, according to the shade of color " desired. The fabric, &c. is then to be dried; when dry I " pass the fabric through another bath containing orpiment or " red arsenic in solution or suspension with caustic alkali, in the " proportion of 1 of orpiment to 5 of alkali, and of the strength " of from 1 to 10 Twaddle. I next hang up the fabric in a cool " room for a few hours to oxydize the manganese, and after that " I wash it in cold water and dry it in a stove. The fabric is now " ready for the indigo color; and, in order to dye it, I immerse it " in the usual hot ash or alkaline indigo vat, and the strength of " this vat varies, as well as the time the fabric is left therein, " according to the shade and depth of colour required, as will be " well understood by any dyer accustomed to the use of the hot " ash or alkaline indigo vat. The fabric, after being washed in " cold water, is passed through a bath containing oxalic or other " acid, of sufficient strength to discharge the manganese. The " acid is to be thoroughly washed out of the fabric, which after " being dried is ready for the market." When the fabric is to be " printed" the various baths must be made stronger. The fabric is thoroughly dried, and then pasted in the usual manner.

[Printed, 3*d*.]

A.D. 1854, December 28.—N° 2736.

COCKCROFT, John.—" Improvements in machinery or appa- " ratus for printing woven or textile fabrics and yarns." These improvements consist " of a peculiar arrangement and application " of the calico or grey piece, by which I am enabled to dispense " with the endless woollen, mackintosh, or cotton blanket, as now " generally used in printing calico and other fabrics." The grey piece is made "to form itself into two, three, four, or any num- " ber of folds required, and in this way advance to and round " the cylinder when printing, the under folds forming a perfect " substitute for the woollen or mackintosh blanket, and the

" surface fold answering as the grey piece now generally used." Suitable " draw rollers" are applied "to conduct the dirty fold away during the process of printing;" also "stretching rollers, " with levers to tighten or slacken the folds as may be required;" also a "balancing roller to prevent any dragging of the grey " folds," also suitable "scrimp rails;" a "regulator, by which the " folds are kept in order;" and " a roller and lever, by which " means I can piece up the grey without stopping the machine."

[Printed, 11*d*.]

A.D. 1854, December 29.—N° 2752.

PILLANS, JAMES.—" Improvements in the preparation of hematosin, and fibrinous and serous matters." These improvements consist in separating "the blood of animals (that of oxen " being the most suitable) into two parts, by allowing the liquid " part to separate from the coagulated clot. The latter or more " solid portion contains the hematosin, or colouring matter of " the blood, besides a certain proportion of serous matter still " retained by it. I then, by a series of knife blades arranged on " a handle, cut this coagulated clot into small pieces; or it may " be ground conveniently betwixt two rollers, or in a mill resembling a coffee or sausage mill, the effect in each case being to " break up the clot; or I attain the same end by pressing the " clot, so as to obtain all the moisture from it, thus separating " the fibrine in a comparatively dry state. I then introduce the " article thus prepared into a drying room, through which a current of hot air is made to pass. When quite dry I grind it into " smaller or larger pieces, or into powder, and it is then fit for " being employed by the Turkey red and other dyers, sugar refiners, and others who at present use blood in its natural state. " The liquid or serous portion of the blood, when purified, I dry " in the same manner, and it is suitable for the use of printers of " textile fabrics (as a substitute for albumen in fixing colors), also " for the fining of wine."

[Printed, 4*d*.]

1855.

A.D. 1855, January 5.—N° 27.

MARTIN, Louis Jacques.—"Improvements in the composi-" tion of colors for printing and dyeing, and in the application of " such colors." A "fast black" may be prepared by adding " acetate of iron" at 4° B., to an equal quantity of "logwood de-" coction of 10 degrees of strength." "Both these ingredients " must be mixed together in a cold state, and then placed on a " slow fire for about a quarter of an hour. After the mixture has " been heated, and whilst still in a heated state I add to it one " part of the brightening mixture, No. 1, which is composed of " equal weights of nitric acid and proto-chloride, or salts of tin, " the latter being dissolved in the nitric acid whilst the acid is in " a cold state; and one part of the brightening mixture, No. 2, is " also added, composed of equal weights of muriatic acid and " proto-chloride of tin, or salts of tin, the latter being dissolved " in the muriatic acid." "To every thirty parts of the entire " mixture I add a few drops of nitrate of copper." For the production of violet, weaker solutions are used of acetate of iron and logwood liquor; and the addition of cochineal will give a redder hue. "For the production of a red tint, I propose to macerate " two pounds of good madder wood and two pounds of cochineal " for about twelve hours in one quart of acetic acid, and to " this I add two pounds of muriate of tin, the whole being " placed in a warm bath, and subjected to the action of a slow " fire for about twelve hours." Such colours are to be thickened and printed in the usual way, and dried "in the open air." On being washed off in cold water the fabrics are passed through a mixture composed of "one hundred parts of water, and one part " of the brightening mixture, No. 2." "In order to dye the " fabrics a uniform tint or color, it is merely necessary to steep " them in any of the colors herein-before described."

[Printed, 4*d*.]

A.D. 1855, January 5.—N° 32.

LIVESEY, John.—(A communication.)—"Improvements in " printing, and in the materials and apparatus connected there-

" with." This invention consists of an improved construction and arrangement of self-inking apparatus, applicable either to typographic, lithographic, zincographic, or other printing machines; of improvements in lithographic printing machines, whereby large sized transfer rollers composed of segments may be employed; in the employment of transfer rollers constructed of zinc plates, or segments of wood secured to a suitable frame, and having stereotype casts attached thereto; and in improvements in the construction of damping rollers, and in the composition of the ink employed.

Fifthly, to a "peculiar construction and arrangement of rotatory " cutting apparatus, for cutting or dividing continuous lengths, or " webbs of printed fabric into sheets of the required size." The webs to be cut are passed between two revolving rollers, and on the surface of the under one is fixed a transverse knife, which cuts the paper at each revolution of the roller into sheets, of the length corresponding to the circumference of the roller. The upper roller may be made of lead.

Lastly, the Patentee claims "the mode of facilitating the obtainment of transfers from old engravings or prints," by soaking them in a solution composed of three ounces distilled water, one ounce of caustic potash, and one quarter of an ounce of essence of lavender, for five minutes, more or less. The engraving so soaked is then placed between folds of blotting paper, and afterwards pressed on to the surface of the lithographic stone or zinc plate slightly heated.

[Printed, 1*s*. 4*d*.]

A.D. 1855, January 8.—N° 48.

NAGLES, Albert.—(Provisional Protection only.) "Improve- " ments in machinery or apparatus for cleaning the surfaces of " woven fabrics, and also for distending or spreading the same, " either before or after or during the processes of bleaching, " printing, or other similar operations." These improvements consist, "first, in the application of a rapidly revolving roller, " furnished with brass or other metallic knives or blades, wound " like the threads of quick threaded screws around the said " roller (screwed right and left handed from the middle of " the length of the roller), and thus forming revolving knives

“ or blades, and which, acting against the back and front of the
“ cloth, will effectually clean or scrape off all loose matters, knots,
“ &c.” Secondly, in the application of an apparatus for “distending or spreading out the cloth from the middle of the pieces
“ towards each selvage,” in lieu of “tentering pins or other substitutes.” This apparatus “consists of small revolving rollers,
“ being screwed or threaded on their surfaces, and also right and
“ left handed.” “These rollers are further divided in the middle
“ of their length, and set or adjusted slightly out of line with each
“ other, so that as they revolve over and under, and in close contact with the cloth, they will have the effect of distending or
“ spreading out the same.”

[Printed, 3*d*.]

A.D. 1855, January 10.—N° 68.

LEHUGEUR, Louis Pierre, and UTTINGER, Michel.—
“ Improvements applicable to machinery for printing fabrics.”
This invention relates to improvements in the construction of the sieve tub for block printers. “The color block or table [the sieve
“ tub] is covered with a cloth of some air-tight and waterproof
“ material, and the required elasticity is imparted to it by means
“ of a collapsible vessel made of india-rubber or other suitable
“ material, provided with a counterbalance weight, which collapsible vessel is filled with water or other liquid, and will, therefore,
“ by means of its counterbalance weight, keep the printing cloth
“ at the required tension.” In the bottom of the sieve tub is a hole about five inches in diameter, to which is attached the above collapsible vessel, and both sieve tub and vessel are filled with water. “The color is placed in a trough or reservoir at one end
“ of the [sieve] cloth, and this latter is supplied with color by
“ means of a horizontal brush, or other suitable contrivance, which
“ extends across the table [the sieve tub], and is worked backwards and forwards from the color trough over the color cloth,
“ by means of a lever, so at that each stroke of the lever fresh color
“ will be supplied from the trough or reservoir at the end.” The sieve cloth is attached to the tub at one end, and stretched at the other by means of india-rubber springs.

[Printed, 7*d*.]

A.D. 1855, January 13.—N° 94.

GRAHAM, John.—" Improvements in fixing certain colors in or " upon yarns and textile fabrics." These improvements consist " in subjecting the yarns or fabrics upon which the colors or lakes " have been applied or dyed in the usual manner to the action of " high-pressure steam, or a mixture of high pressure steam and " air, or of water heated and under pressure, or to the action of " steam alone or steam mixed with air heated to the temperature " of 250° to 300° degrees of Fahrenheit, or more or less; or to the " action of solutions of suitable chemical substances capable of " being heated to a high temperature, such as sulphate of soda, " chloride of sodium, arseniate of soda, chloride of calcium, or " others of the like nature. The colors or lakes to which these " improvements have been found most applicable are garancine, " madder, cochineal, logwood, sumac, quercitron bark, and other " dye stuffs of the same nature, in combination with oxide of iron " alumina, tin, and other mordants."

[Printed, 3*d.*]

A.D. 1855, January 18.—N° 135.

JOHNSON, William.—(A communication.)—" Improvements " in the application, treatment, cleansing, and dyeing of fibrous substances and products." These improvements relate to " the treatment, cleansing, and decolorizing of all kinds of vegetable fibres, " fibrous substances, and products containing ligneous fibres." Among other substances given in the specification as examples are " spent dyewoods," " yarns," " clothes," " felt," rags," " lint," " mats," " pulps," &c. " Such vegetable matters are primarily boiled " (with or without pressure) in a solution containing a mixture of " caustic lime water and caustic soda or potash of suitable strength. " After this treatment the matters operated upon are washed and " subjected to the action of heat either by means of steam or " boiling water. A cold solution of chloride of lime or other " bleaching liquor is then applied to the treated matters, the " bleaching solution being of sufficient strength to produce the " desired degree of whiteness. Chlorine gas or the fumes of " sulphur may also be passed through the solution to aid the " effect whilst the solution is hot. In some instances, and more " especially in the rotting treatment of flax, straw, and other

" matters, it is advantageous to acidulate the heated water with " sulphuric or muriatic acid; a small proportion of caustic lime, " soda, or potash, or magnesia, or other salt may also be added " with advantage prior to the application of the chlorine com- " pounds." The specification gives a numerous list of "plants " and other substances containing woody fibre," which may be " advantageously applied in the manufacture of white paper pulp." Among others "madder and other rubiaceae," "spent dyewoods," &c. When animal and vegetable substances are mixed together the animal portion may be dissolved out by means of " caustic " alkali and caustic lime," " and the solution so obtained may be " used as manure, and in the manufacture of several chemical " products, such as chordrine, albumen, prussiates, and picrates." " By boiling heather, broom, whin, sea weeds, and many other " plants, according to the herein-before described process, solu- " tions are obtained which may be employed for cleansing, dyeing, " the manufacture of manure, and soaps, and for other purposes." " In the conversion of rags into paper pulp, they are treated in a " machine on the wool 'devilling' principle;" "but hard or re- " fractory substances are crushed between rollers, or rasped and " reduced prior to boiling." "In dyeing fibrous substances, " picric acid or picrates, in combination with tannic, chromic, " prussic, or acetic acids, and their salts, as well as with indigo " and madder, are used;" "picric acid is also used in combina- " tion with chlorine and metallic bases, such as mercury, iron, " cobalt, manganese, copper, and lead." " When oleaginous " matters are employed in dyeing, they are applied in combination " with caustic ammonia."

[Printed, 4*d.*]

A.D. 1855, January 19.—N° 146.

CLARKE, John Irwin.—(A communication from Moat, Francis.)—" Improvements in applying color to the edges " of leather gloves." " In preparing to dye the edges of the " cut out parts of leather gloves before sewing them, they " are held between two pressing surfaces, so that the edges of " the pieces of leather may protrude slightly beyond the edges of " the pressing surfaces. The pressing surfaces have each an out- " line corresponding with the outline of the cut out pieces of

" leather which are to have their edges dyed, and therefore the " pressing surfaces used for these purposes will vary, according to " the cut of the glove and the different sizes thereof. It is pre- " ferred that the pressing surfaces between which the parts of " gloves are held during the time of applying dye to the edges of " the leather should be arranged in the forms of spring forceps, " but the manner of holding the requisite pressing surfaces toge- " ther may be varied." The colouring matter or dye may then be applied to the protruding edges by means of a sponge, brush, or other convenient material.

[Printed, 6*d.*]

A.D. 1855, January 20.—N° 155.

DOUGLAS, William, and CARSWELL, John.—" Improve- " ments in dyeing woven fabrics." These improvements relate " to dyeing woven fabrics subsequent to the process of padding " (which has hitherto been the last process of colouring), so as to " brighten and improve the color. We finish the dyeing process " (of blue velvets, for instance) by a compound containing ingre- " dients which impart a pink or red tinge, as extract of safflower, " and tartrate of soda, and potash; and for other colours we " employ ingredients to harmonize with the intended color in a " similar manner. To obtain the blue color with a pink or red " tinge, as above mentioned, we use the following drugs or com- " pounds, in any suitable proportions that may be found most " useful in practice. Prepared salts, sulphuric acid, a mixture of " prussiate of potash and prussiate of potash pulp, tartaric acid, " oxalic acid, super sulphur, sal ammoniac, gum dragon, carmine, " and tartrate of potash and soda, gum, starch, chrome, pearlash, " and sulphuric acid. We steam, wash, and clear the pieces as " usual in such processes."

[Printed, 3*d.*]

A.D. 1855, January 26.—N° 200.

LEESE, Joseph, Junior.—" Improvements in the process of " printing calicoes and other textile fabrics." This invention consists, " firstly, in the recovery of the copper used as a resist " in indigo blue printing. " Secondly, in the substitution of other " resists for the salts of copper." " I add sulphuric or any other

" acid that will dissolve oxide of copper to the indigo that is washed " off the dyed pieces, and which is known in the trade as 'bowl- " ings.' I also submit the pieces after the 'bowlings' have been " taken from them to weak sulphuric or other acids; the copper " remaining on the cloth is by this means dissolved off. I then " filter the indigo from the solution of sulphate or other acid " solution of copper, and evaporate it till it has attained the " strength desired, or is formed into crystals;" or "zinc or iron" may be added to the above weak solution "which causes the copper " to be precipitated in the metallic form;" or the copper may be " dissolved in 'ammonia.'" "I then separate the ammonia from " the copper by means of distillation, and thus recover the ammonia by means of the ordinary still. I also form other resists " (for the purpose of protecting the pattern from the action of the " blue vat or dye), either by sulphate of manganese, the salts of " iron, the sulphurets of the same two metals, or mixtures of these " salts, also of resins dissolved either in alkalies or other solvents," as substitutes for salts of copper.

[Printed, 3*d*.]

A.D. 1855, January 30.—N° 231.

POCHIN, Henry Davis.—" Improvements in the treatment of " certain compounds of alumina, and the application of the same " in printing, dyeing, tawing, paper making, and such like purposes." This invention relates to the manufacture and application of a compound which "I term aluminous cake," composed of " but little more than the silica originally in the clay, and the " sulphate of alumina, formed by the action of the sulphuric acid " on the alumina, and no free or uncombined acid." "I take clay " composed of various quantities of silica, alumina, iron, and " water, or clay without iron, when it can be had. I find I can " use with advantage and economy that containing about 45 of " silica, 37 of alumina, 3 of oxide of iron, and 17·7 of water in " 100 parts." Such clay is partially dried and pounded into powder, then heated and stirred in a furnace until the whole of the water is evaporated, and finally sifted through a fine sieve. "One ton " [of such dried clay] is intimately mixed with 21 cwt. of sulphuric acid, having a specific gravity of about 1735, and afterwards as much water added as would reduce the specific gravity

" of the sulphuric acid employed to about 1350. It is then " placed in a leaden or other suitable vessel, and steam or fire " applied, being well agitated until it reaches a temperature of " 212° Fahrenheit, when the greater part of the sulphuric acid " combines with the alumina of the clay, causing a violent action. " It is then continued at a boiling temperature for about four " hours, so as to ensure the combination of the whole of the acid " with the alumina." "The fire is then withdrawn, and the mass " removed and allowed to cool." "This aluminous cake [which " may contain the silica and a small excess of clay] may be em- " ployed in the manufacture of the aluminous mordants used by " calico printers and dyers, and in various other processes used by " dyers; and in the preparation of white leather, in the process " termed tawing; also in the manufacture of paper, as a substi- " tute for alum, and the ordinary sulphate of alumina."

[Printed, 3*d.*]

A.D. 1855, January 31.—N° 233.

SMITH, John, and HOLLINGWORTH, James.—" Improve- " ments in treating certain fibrous materials for manufacturing " paper." The novelty of these improvements consists "in wash- " ing out from the materials the chlorine gas with warm water; " the boiling of the gas-bleached materials in sulphite of soda " and alkali, or soda ash; and the employment of sulphuric acid " after washing out the gas before boiling the materials in alkaline " solutions." The process consists generally in first washing the dressed materials [from surat, jute, gummy, or sugar bagging, &c.], and then boiling them in lime water. Second, washing in water, to which a little grease is added, and then in weak hydrochloric acid. Third, exposure to chlorine gas, and then washing in water at the temperature of about 108°, to which should also be added a little grease; and also towards the end of the washing, a little sulphuric acid. Fourth, the materials are boiled in a weak solution of sulphite of soda and soda ash. Fifth, they are washed and then treated with a hot or cold solution of chloride of lime. Sixth, the materials are then to be drained nearly dry, and steeped or bathed in a weak solution of sulphuric acid, or hydrochloric acid, then drained and dried, when they will be in a fit state for making into pulp for paper.

[Printed, 3*d.*]

A.D. 1855, February 3.—N° 259.

LIPPMAN, Isaie.—(Provisional Protection only.) "An im-
" proved method of dyeing or coloring the hides and skins
" of animals." "By this new method," "the skins are dyed or
" colored in the first instance, and afterwards tanned in the
" ordinary way; the process of dyeing being effected by the means
" employed in the coloring of vegetable substances, such as silk,
" cotton, &c."

[Printed, 3*d.*]

A.D. 1855, February 5.—N° 272.

CARRÉ, Pierre Joseph.—(Provisional Protection only.) "Im-
" provements in ornamenting fabrics with metal leaf." "This
" invention consists in embossing fabrics, and in printing or
" covering the embossed parts with metal leaf. The fabric to
" be thus ornamented is cemented or fastened on to paper,
" cardboard, or other suitable material, and is then embossed by
" a block, on which a suitable pattern is cut, and is at the
" same time printed with a suitable mordant for attaching
" the metal leaf. This metal leaf is spread on a sheet of paper,
" prepared with an unctuous or other body, suitable for tem-
" porarily attaching the leaf to the paper. The sheet of paper,
" with the leaf thereon, is then placed on the engraved block;
" over it is placed accurately by register points the fabric already
" embossed and printed with mordant, and the whole is covered
" by several folds of cloth, then pressed and heated while under
" pressure, so as to cause the leaf to adhere firmly. Finally the
" fabric is removed from the press, separated from the paper, card-
" board, or other material to which it was attached, and any super-
" fluous leaf is removed by brushing."

[Printed, 3*d.*]

A.D. 1855, February 6.—N° 276.

TRAPPES, Henry.—(Provisional Protection only.) "A process
" for the preparation of leather to be used in the manufacture of a
" new flock, and for the manufacture of the same, to be used and
" applied in lieu of flock made from pounded or ground wool and
" woollen materials heretofore commonly used in the manufacture

" of painted, printed, and dyed decorating papers, carpets, oil " cloths, and other things; and also to be used as a paste or pulp " for the manufacture of all kinds of paper, parchment, and " pasteboard, of toys, of ornamental and other picture frames, of " mouldings, architectural and sculptural ornaments, and other " things."

This invention appears to be a repetition of that patented by the same Patentee, A.D. 1854, September 5,—N° 1939.

[Printed, 3*d.*]

A.D. 1855, February 6.—N° 281.

SMITH, Peter.—" Improvements in machinery or apparatus for " printing textile fabrics and other surfaces." These improvements relate to the " adaptation of mechanical lifting and traversing " apparatus to cylinder printing machinery employed in printing " calicoes and other fabrics, for the purpose of facilitating the " shipping and unshipping or removal of the printing roller and " mandrils as is required in working such machinery," " such " mechanism and details being specially adapted to, or forming " part of such machines." As applied to an ordinary " cylinder " printing machine, the latter is so modified as to carry upon the " top of its printing standards, a pair of horizontal parallel bars " or railway surfaces, for the running thereon of four small carrying wheels. These wheels form the traversing support of an " open rectangular frame, which is made of such length that when " traversed over to one side, it shall overhang all the parts of the " printing machine. The frame stands at right angles to the " axes of the printing cylinders, and its two ends are each fitted " with a pair of freely running rope or chain pulleys. When in " use, each of these pulleys has passed over it a short rope or " chain, having at its pendant end a wide hook or link, capable of " grasping the mandril of a printing roller. The other ends of " the two ropes are connected to and wound upon a hoisting " barrel, set in end bearings near the top of the machine, and " parallel to the axes of the printing cylinders beneath. On one " end of the hoisting barrel shaft is a worm wheel, having in gear " with it a worm on the upper end of a vertical shaft, carried in " collar bearings on the side of the main standard framing, and " descending to a level to suit the convenience of the attendant,

" a handle being fitted on this part for turning the shaft. A " similar shaft is also fitted up close to the one just described, for " the purpose of providing means for effecting the necessary " horizontal traverse of the shifting frame. The upper end of " this shaft is connected by means of a pair of bevil pinions, with " a horizontal shaft passing across the machine above the frame. " This shaft carries a spur pinion, gearing with a horizontal rack " passing along the centre of the frame; or two racks may be used, " one on each side of the frame." By these means the rollers both at the back and at the front may be slung out or into the machine.

[Printed, 9*d.*]

A.D. 1855, February 8.—N° 297.

WILSON, John.—(Provisional Protection only.) " Improve-" ments in the manufacture of rollers for printing and embossing " calico and other fabrics." This invention " consists in manu-" facturing such rollers of zinc, or of alloys of zinc, the object " being to produce rollers at less expense than heretofore."

[Printed, 3*d.*]

A.D. 1855, February 10.—N° 319.

BESNARD, Louis Adolphe Ferdinand.—" An improved " composition for fixing lithographs and engravings on canvas " after being transposed or reproduced by a printing press." A solution may be made by boiling a spoonful of " linseed " in a quart of water, and to the strained liquor is added a solution of 400 grains of " pure white moist sugar." A second solution may be made by dissolving gradually 800 grains, troy, of the " purest " and whitest gelatine " in a quart of water maintained in a state of ebullition. On being pressed through a strainer the two solutions are mixed together. " I place it again on the fire, and when " ebullition commences, I stir with a camel hair brush, which I " withdraw saturated with the liquid, and pass it quickly and " lightly over the lithograph or engraving (which has been pre-" viously transferred to the canvass to be painted by means of " transfer paper, which is entirely removed) up and down, across,

" and to & fro, thus leaving the drawing completely freed from the
" smallest particle of paper. This application of the above solution
" by the camel hair brush fixes instantaneously the drawing to the
" canvass. The drying of the canvass occupies more or less time,
" according to temperature. I then coat with varnish by means
" of a fishtail brush, taking care to employ the varnish in the cold
" state, and not too thick. The canvass thus prepared is ready
" for painting by the ordinary methods."

[Printed, 3*d.*]

A.D. 1855, February 10.—Nº 320.

BELLFORD, Auguste Edouard Loradoux.—(A communication from Kuhlmann, Frederic.)—" Materials to be used for " cementing and painting, and also applicable to printing and " dressing or finishing fabrics." This invention consists, first, " in substituting the solutions of silicate of soda or of potash for " oil, essence, glue, &c. for any kind of painting, printing, var- " nishing, and gilding on any kind of subject or object, and using " for these paints arcificial or natural sulphate of barytes, to be " applied in many cases as substitutes for white lead and zinc " white." Second, in fixing in the cold state paints, enamels, varnishes, and gilding upon porcelain and glass; or fixing one sheet of glass to another; or joining the pieces or panes of glass edgeways by means of the above silicates. The Patentee proposes also to make hydraulic and other cements by adding " lime and " some silicious matter," to " silicates obtained by the dry pro- " cess [prepared in a reverberatory furnace];" also to make inks by the addition of soluble silicates; also its use as the gummy or adhesive matter for attaching flock, sand, or emery to paper or fabrics; or for printing and fixing pigments on fabrics; or for finishing fabrics, and stiffening paper, which will render them very water tight, and more substantial; also for fixing colours or colourless oxides absorbed in dying calcareous stones by means of an alkaline silicate. Lastly, the use of hydro-fluosilicic acid for hardening calcareous stones, or for fixing the potash that is contained in stones that have been hardened by the application of silicate of potash; or else for merely rendering insoluble the silicious colours after they have been applied.

[Printed, 4*d.*]

A.D. 1855, February 16.—N° 348.

CARLESS, Eugène.—“Improvements in the manufacture of paper cloth, known as artificial leather, and in coating or covering the surface thereof with coloring matter, said coloring process being also adapted to the coloring or staining of paper.” The Patentee claims the manufacture of “paper cloth” by the mechanical means” as described; and, also, “the use or application of brushes revolving or moving in an horizontal direction over a table or other plane surface, for the purpose of coloring or staining paper or paper cloth.” The paper and cloth are wound on separate rolls. The cloth, supposing it to be pasted and not the paper, is caused to pass in a continuous manner under a paste trough where its surface is supplied with paste, and between a pair of rollers to equalize the paste, and over a stretching roller; it then meets the sheet of paper, with which it passes in contact under a rail, and through a pair of pressure rollers heated or otherwise which squeese out the superfluous paste and causes perfect adhesion of the cloth to the paper. The united web is then caused to pass over and round drying cylinders, between which may be placed a colour trough and furnishing roller to apply colour to the face of the web, and a table over which are placed a series of soft brushes, to which rapid horizontal circular motion is imparted by means of cranks. The web then passes on and is enamelled by the usual apparatus for that purpose, and finally glazed between calendering rollers.

[Printed, 10*d.*]

A.D. 1855, February 16.—N° 354.

BLACKBURN, Robert, and DUNCAN, William Lundi.—(Provisional Protection only). “Improvements in bleaching.” “This invention consists of causing cloths or yarns to be moved in an extended state in the liquors employed in bleaching, in such a manner that the several vessels required being contiguous to each other, the cloths or yarns enter the liquor in the first, and circulate to and fro several times therein; the cloths or yarns then pass into the liquor in the next vessel and circulate several times to and fro therein; the cloths or yarns then pass into the next vessel [which may contain high pressure steam], and circulate to and fro therein, and so on, in the succession of vessels used.”

[Printed, 3*d.*]

A.D. 1855, February 28.—N° 437.

HIGGIN, James.—" Improvements in treating certain waste " soap liquors, and obtaining therefrom certain products appli- " cable to purposes not hitherto known." This invention consists in " separating from waste colored soap solutions a coloring fatty " substance, and diluting the same with a finely powdered or " fibrous substance, so that when the said mixture is used in " dyeing, the fat will remain combined with the powdered sub- " stance, and be incapable of staining the whites." The fat acid and colouring matter of spent soap liquor, after soaping madder-dyed fabrics, may be precipitated by means of sulphate of alumina and collected on a filter. " When it is in the state of stiff paste, " I put it into a vessel with about ten per cent. of its weight of " sulphuric acid of commerce. I then blow steam in by means " of a leaden pipe or other contrivance, and boil the mixture until " the colored fat is completely separated from the base, which will " be known by its appearing of an orange color and of a fatty " nature. The mixture must then be cooled, thrown on a filter, " and washed with cold water, until the liquor that runs through " is neutral to test paper. The coloured fat is then weighed, and " an equal weight of fine sawdust added;" "then put the mixture " into a vessel to be heated by steam, and stirred or agitated until " a uniform mixture is obtained. The matter will now resemble " a dye stuff in appearance, and may be used precisely as garan- " cine and garanceux are used in the dyeing process." Other salts and acids may be used to effect the same object, as well as other powders or fibrous substances. Such powders or fibrous substances may also be added to the soap liquor previous to precipitating the fat and coloring matter.

[Printed, 3*d.*]

A.D. 1855, March 1.—N° 452.

VIGOUREUX, Stanislas.—" Improvements in printing, or- " namenting, and dressing woven and textile fabrics." These improvements relate to the "printing, ornamenting, and dressing " woven and textile fabrics with the aid of steam, and pressure." The fabric operated upon is forced into holes, engravings, grooves, &c., in the surface of a plate, by means of the pressure of steam, thus :—The fabric is laid upon a " hollow table or box, having its " uper surface perforated with a multitude of small holes," " and " covered by a plate of metal or other suitable material, perforated " with holes in the form of the pattern required," (" or engraved, " corrugated, or grooved on the surface, in lieu of being per- " forated "). "This is covered with a smooth plate, and with " a pad or cushion formed of several layers of cloth, and covered " with a strong plate, which is pressed down by a hydraulic press, " or screws, or otherwise. Steam is admitted by a pipe into the " table, and as it passes through the perforated top it swells or " forces up the fabric into the perforations or cavities in the plate. " The fabric is thus ornamented and dressed by the action of " steam." "When it is required to print the fabric at the same " time, the surfaces or the cavities of the plates are charged with " color before placing them on the fabric, which is thus printed, " ornamented, and dressed at one operation." Different effects may be produced by using plates variously perforated. Or the fabric may be "folded backwards and forwards between " several pattern plates and smooth plates alternately," then exposed to the action of steam, and pressed with a " hydraulic or " other press." Effects may be obtained by placing "the fabric " in contact with another fabric, dyed or printed with colors which " are not fixed upon it, and submitting them together to the " aforesaid treatment," and by introducing with the steam "acid " or other vapours capable of coloring, or changing, or discharging " the color of the fabric." " The fabric may have additional " lustre given to it after the aforesaid treatment by passing it " round rollers or cylinders heated by steam."

[Printed, 6*d*.]

A.D. 1855, March 5.—N° 492.

WOOD, JAMES.—" Improvements in ornamenting woven fabrics " for bookbinders and others." These improvements consist in " applying ' Dutch metal ' leaf to woven fabrics by printing with " adhesive composition on to the woven fabric, and then applying " the 'Dutch metal' leaf to the printed surface." "The im- " pressions on the woven fabrics are produced in the ordinary " manner of surface printing, and the Dutch metal leaf is to be " applied thereto." "The woven fabrics may be thus printed

" with Dutch metal leaf, before or after the embossing of such " fabrics in the usual manner, to imitate leather, and otherwise." The "printing fluid" employed consists of "varnish mixed and " boiled together with bees' wax, oil of lavender being added to " the mixture whilst still hot." When the object is to emboss and gild "book covers," "the following adhesive composition is " preferred :—1 lb. of Venice turpentine, ¼ lb. of yellow bees' wax, " 1 pint of printers' varnish, 1 pint of thick gold size, and 1 oz. " of best white wax. These substances are to be melted and " boiled together, and about one drachm of oil of lavender is to be " added to the mixture while it is hot." This composition when used is brought to the proper consistency by the addition of " gold size and varnish." The book covers are "embossed or " blind blocked" in the usual manner. The "composition" is then printed on by the block, and, finally, the Dutch metal leaf is laid on to the printed parts, and may be again pressed by the block, "putting a sheet of enamelled paper between the block and " the cover." "Sometimes, in place of operating on the book " cover by embossing, printing, and applying the metal leaf, as " above described, I simply, by means of the block, print the " composition on to the fabric, and then spread the metal leaf on " the printed impression, and wipe off the superfluous portions of " the leaf."

[Printed, 3*d.*]

A.D. 1855, March 6.—N° 495.

JENKINS, William.—(Provisional Protection only.) "An im- " proved method of casting copper cylinders, copper vessels, and " other copper forms." "A mould of iron, sand, loam, or other " suitable material, made in three principal parts, namely, the " bottom, the outside jacket or mould, and the core. The core " is supported at one end by a pin in its centre falling into a hole " in the bottom, and at the other end by another pin passing " through a cross head attached to the outer mould or jacket, " as is desired. The space between the core and the outer mould " or jacket is to be made quite close at one end, and at the other " to be quite open, so that a continuous passage or 'git' is " provided for the flow of the melted metal into the mould. A " sufficient supply of the melted metal is to be kept up to

" keep this 'git' or passage closed, so that the space between " the inner surface of the melted metal, and the end of the " chamber intended to receive the melted metal, and to form " the cylinder vessels or other shape or form required, shall be " excluded from communication with the atmosphere at the " opposite end to the inlet or 'git' end. A communication is " to be made with a partially exhausted chamber, or an exhaust " pump or pumps, so that the air in the chamber between the " surface of the melted metal and the end of the mould may be " kept in a partially exhausted state, so as to facilitate the flow of " the melted metal into it."

[Printed, 3*d.*]

A.D. 1855, March 6.—N° 501.

TARDIF, Eugène.—" An improved construction of numbering " apparatus." "The object of this invention is to facilitate the " printing of consecutive numbers from hand stamps. For this " purpose I apply to the hand stamp or numbering apparatus a " contrivance for turning the numbering discs during the transit " of the apparatus (after each impress) from the article stamped " to the inking pad to take up a fresh supply of ink. I am thus " enabled to bring round the numbers in their proper rotation, to " ink the discs, and print off an impression in the same time and " with as quick succession as impressions can be given off from a " simple stamp." A "coiled spring" is placed in the handle of the stamp which acts on the rod which actuates the star or ratchet wheels connected with the numbering discs. "When the button " at the top of the rod is pressed upon it will yield to the pressure " and permit the bar, and with it the click, to move down and " drive the star wheel attached to the numbering disc round the " distance of one tooth. When the pressure is removed from the " button, the elasticity of the spring will return the rod to its " elevated position, and thereby draw the click into a proper " position for acting upon the next succeeding tooth of the units' " disc wheel."

[Printed, 7*d.*]

A.D. 1855, March 9.—N° 531.

MURDOCK, James.—" An improved method of enlarging or " reducing designs, maps, and other similar articles, also appara-

" tus or machinery to be employed in the same." This invention relates, "firstly, to the enlarging designs, maps, and other similar " articles, by transferring the design to a sheet of caoutchouc (or " other suitable elastic material), and then stretching the material " equally in all directions, and the reducing such designs by trans- " ferring them to a sheet of caoutchouc, or other suitable material " previously equally stretched in all directions, and then allowing " the material to shrink or contract equally in all directions." And, "secondly, in the apparatus for stretching the elastic mate- " rial, and for making transfers of the design to or from the " elastic material." The design to be transferred may be engraved on a sheet of gelatine, which is supplied with color; or it may be drawn on paper with "an ink composed of lamp black " burnt and pounded with molasses." The transfer of the tracing to the caoutchouc, or from the caoutchouc to the paper, is effected by pressure given by a series of levers and screws. The sheet of caoutchouc is placed on a smooth plate, and slightly damped, and after the transfer is made its edges are caught all round the plate by a clip, and drawn down equally by suitable machinery, thereby extending the surface of the caoutchouc and enlarging the design. The impression may then be taken off by pressure as above. Or the reverse of this may take place, namely, the caoutchouc may be distended before the transfer is made, and then allowed to contract, when a reduced impression will be obtained.

[Printed, 7*d*.]

A.D. 1855, March 14.—N° 566.

GRAY, Henry.—(Provisional Protection only.) "Manufactur- " ing from vegetable substances a material which can be applied " to all adhesive surfaces for either useful or ornamental purposes, " as a substitute for and in the same manner as flock is now used " or applied on adhesive surfaces." "The said material is made " from wood dust, or any other vegetable fibrous substance, by " drying, and grinding and pulverising the same to various de- " grees of fineness, as required, so as to represent flock made from " wool, and then the same may be used either in its natural " colour, or it may be dyed of any color by any of the ordinary " processes now in use for dyeing vegetable substances, and

" applied to adhesive surfaces in the manufacture of linen, muslin, " calico, or paper hangings, or fabrics, show cards or boards, " labels, and other similar manufactures, in the same manner and " for the same purposes as woollen flock is now used or applied."

[Printed, 3*d.*]

A.D. 1855, March 26.—N° 667.

HILL, Henry Charles.—" Improvements in the manufacture " of waterproof flocked cloth and other fabrics." The Patentee claims, " firstly, the preparation of waterproof materials for coat- " ing or covering fabrics from vulcanized, mineralized, metalized, " or other cured india-rubber, and more especially from the waste " of such cured india-rubber, and combined with unprepared " india-rubber or gutta percha." " Secondly, the process of " curing and rendering inodorous waterproof fabrics, by means of " a current or currents of heated air or steam, and also the mecha- " nical arrangements for effecting the same." " Thirdly, the " method of perfuming or imparting an agreeable odour to water- " proof fabrics." " Fourthly, flocking surfaces coated or covered " with sulphurized, metalized, mineralized, or other prepared india- " rubber or gutta percha, combined with prepared india-rubber " or gutta percha." " Fifthly, the preparation of the fibrous " materials, and the application of the same to the manufacture " of coloured flocked cloth or other fabrics, either mixed or " plain." The fibrous material used may be " woollen or cotton " flock, ground sponge, sawdust, ground cork, cocoa-nut fibre, " shavings of willow, hair, or other suitable fibrous material," dyed or stained of the intended color, and thoroughly dried. The coloured fibre is mixed with " prepared india-rubber " or " india- " rubber and gutta percha," and applied to the fabric.

[Printed, 4*d.*]

A.D. 1855, March 27.—N° 675.

GEDGE, John.—" Improvements in the mode or modes of trans- " ferring designs on to woven textile or other fabrics, or on paper, " and in the machinery used for such purposes." " This inven- " tion consists in a new mode of printing patterns of lace or other " designs on silk, satin, paper, or other fabrics." The printing roller may be made of " German or lithographic stone or zinc," and is supplied with colour by means of two distributing rollers placed underneath it; and over the printing roller is placed the impressing roller or bowl. The undermost distributing roller is supplied with colour by means of an "inking table," which is caused to traverse both by means of a rack and pinion. The inking table receives its supply of colour from a roller which is caused to revolve alternately in contact with a furnishing roller placed in the colour box, and then over the surface of the inking table during the course of its traverse. The whole is arranged in suitable framing, and is provided with springs and levers to regulate the pressure.

[Printed, *6d.*]

A.D. 1855, March 28.—Nº 683.

HIGGIN, JAMES.—(Provisional Protection only.) "The use of " a thickener for mordants and colors for printing woven fabrics, " which thickener has not been hitherto used for such purposes." " I propose to use the flour of barley as a thickener for mordants " and colors used in printing woven fabrics, the said flour of barley " to be well dressed, so as to remove the bran. To be used in the " same manner as starch, wheat flour, or the ordinary gum sub" stitute are used, namely, by boiling the mordant or color with " so much of the flour as will render it of convenient thickness for " printing; or a mixture may be made of barley flour, with other " thickening substances, as wheat flour, starch, sago, or similar " products in any suitable proportions, and the mordant or color " thickened with the said mixture."

[Printed, *3d.*]

A.D. 1855, March 29.—Nº 696.

GILLOT, MARIE JEANNE THÉRÈSE, (Widow), and **BEAUVAIS, CECILE CELESTINE.**—"Improvements in purify" ing grain, vegetable or botanical matter, and cochineal." These improvements consist "in immersing the damaged grain, or " other product [such as peas and lentils], to be treated, in cold " water (preferably pump, spring, or well water), and leaving the " said grain or product in the water only the time strictly suffi" cient to free the grain or product from the impurities by which " it has been effected," after which it is spread out and rapidly dried. "Rice, sago, and tapioca" must not remain long in the pump water. "The water must be quickly drained off, and the grains " spread in a place where they are exposed to a strong current of " air, so as to prevent their decomposition." "Coffee must be " subjected to the washing process for a longer time than the pre- " ceding substances," and in some cases it requires a second wash- " ing." "Tea.—To preserve the aroma of the tea the washing must " be operated as rapidly as possible, and in the coldest water. " After having been freed from salt, and the water sufficiently " drained off, the tea is passed into a cold infusion of violets, " which will revive the aromatic flavour, and when dried it must " be stored in a well closed case, so as to concentrate the aroma." " 'Overheated flour' must be passed through a very fine sieve, " and the mites which were in the flour will remain in the sifter;" and "the eggs of the mites," "and sour taste" may be destroyed " by passing the flour through a slightly heated cylinder." Wholesome bread may be made of such purified flour, and the " waste" may be used " for paste and like purposes." "Cochi- " neal may be freed from the salt (of sea water) "by washing it " rapidly with spring or pump water." "If the operation be per- " formed with the required precision, the cochineal will keep its " shape (and epiderm), and dyers will be certain of obtaining the " color.

[Printed, 4*d*.]

A.D. 1855, April 11.—N° 799.

DOPTER, JEAN VINCENT MARIE.—"Improvements in printing " fabrics." These improvements consist, first, "in reducing into " powder cloth printing colours (either steam or application " colours), mordants for madder, cochineal, and other dyeing sub- " stances, mordants corroding on dyed or printed fabrics, and " such substances as form resists or spares, that is to say, preserve " the fabric from colouring." "Second, in applying those powders " to printing or tracing off on every kind of fabrics by litho- " graphy, chromo-lithography, zincography, copper-plate en- " graving, typography, and also by all the modes of printing " that are carried on in different colours with fatty or glutinous " substances that can be powdered upon." "Third, in powder- " ing over the stone, wood, or metal on which the drawing or en-

" graving has been made, coated with either a fatty or a glutinous " or agglutinative substance that is made to receive the powdered " color; and by the application of a considerable pressure is then " fixed on the fabric that has previously been damped for that " purpose." " Fourth, covering the fabric with a gelatine coating " which resists the colour, except where said coating is printed " upon." Fifth, applying " on the fabric previously damped a thin " sheet of gelatine printed and powdered upon, which being dis- " solved by steam, leaves the color on the fabric." " Sixth, in " printing on any solid and smooth body that can be powdered " upon, and transmit the print thus powdered to the fabric, such " as paper, wood, metal, varnished leather, vellum, &c., or fabrics " coated or uncoated with gum, varnish, &c." " Seventh, in " printing on paper or any other solid body, glutinous soluble " substances, that by pressure and previous damping take off on " the fabric any fatty substance duly powdered with the proper " colour." " Eighth, in the sizing of the fabric intended to be " printed or traced off on any solid body coated with an aggluti- " native substance, such as paper, leather, vellum, metal, wood, " &c., in order to bring the patterns of different colours in their " right places."

[Printed, *4d.*]

A.D. 1855, April 18.—Nº 853.

KAY, John.—" Improvements in preparing and printing textile " fabrics and other surfaces." These improvements consist in the " general arrangement and construction of machinery, or " apparatus to be applied to machinery for printing textile fabrics ;" and in its " application and use for stretching and cleaning the " fabric;" and in connection with " machinery for preparing, " drying, or beaming textile fabrics." " Such apparatus consist- " ing of a pair of rollers acting on opposite sides of the fabric, " each of which rollers is formed with right and left handed heli- " cal blades;" " and relate more particularly to the cleansing, " stretching, and smoothing of calico and other woven goods, pre- " vious to or at the time of their being printed, in the cylinder, " or other printing machinery ordinarily employed in printing textile " fabrics, the object being the improvement of the printing effect, " by presenting the fabric in an evenly spread and cleansed condi-

" tion to the actual printing action." "At the back of the print-
" ing machine, or on that side where the imprinted fabric enters to
" pass to the printing cylinders, a small frame work is fitted up to
" carry a pair of helical scroll blade rollers with their driving and
" adjusting gearing. These two scroll blade rollers are geared
" together with equal sized wheels, to rotate in concert but in
" reverse directions," and are caused to work "continuously with
" the machine itself." The fabric is caused to pass over these rollers, rotating so as to present the angles formed by the blades foremost. "It follows that the blade action upon any fabrics
" presented to the rollers, will be to stretch out the fabric across
" its width, and at the same time to clear off any loosely adhering
" fibres and foreign matters."

[Printed, 7*d.*]

A.D. 1855, April 19.—N° 866.

HINDLE, James.—(Provisional Protection only.) "Improve-
" ments in machinery or apparatus used in the process of print-
" ing woven fabrics." "My invention consists of cleansing the
" blanket whilst the machine is in motion, by passing it between
" rollers revolving in water or any suitable liquid, and then drying
" it by means of heated cylinders and steam chests, and then con-
" veying it to the printing process perfectly cleansed, thus having
" constantly a clean blanket without stopping the progress of
" the work, or using calico or other material for the purpose."

[Printed, 6*d.*]

A.D. 1855, April 19.—N° 867.

BISHOP, William.—(Provisional Protection only.) "An im-
" proved mode of ornamenting writing papers." "This inven-
" tion relates to a mode of ornamenting the surface of writing
" papers without detracting from their utility as writing papers.
" This object I propose to effect by printing patterns upon the
" paper in pale flat tints, which shall harmonize with the color
" of the paper, and so contrast with the color of writing ink as
" not to interfere with the legibility of any writing that may be
" put upon it, and yet at the same time shall sufficiently indicate
" the presence of ornamentation, somewhat like that produced in
" damask weaving."

[Printed, 3*d.*]

A.D. 1855, April 19.—N° 870.

JONES, WILLIAM.—" Improvements in printing calico and " other fabrics." " The object of this invention is the improve- " ment of the machinery used for conducting the grey or back " cloth, one or more times through a printing-machine, in " order that it may be used as a substitute for the blanket; " which improvement consists of an arrangement by which the " different folds of the said grey or back cloth may be kept at a " uniform degree of tightness. It is effected by the use of rollers, " weighted as much as may be necessary, whose centres work in " sliding blocks which are at liberty to move up or down in " grooves in the framing provided for that purpose; or the said " roller centres may be fixed in levers, or in any other way, so " that they shall be free to move and act upon the grey or " back cloth." The back cloth instead of passing in single ply through the machine is caused to return twice, and passing round the weighted rollers each time, finally proceeds through the machine, behind the fabric to be printed in three plys, each fold or ply being kept at a uniform degree of tightness.

[Printed, 9*d.*]

A.D. 1855, April 25.—N° 923.

WALLACE, JAMES, junior.—" Improvements in bleaching, " washing, or cleansing textile fabrics and materials." This invention relates to improvements in connection with the " ordi- " nary dash-wheel." " The [new] dash-wheel, which in its general " features is constructed like those hitherto in use, is mounted " upon a hollow shaft, which is put in communication with a " steam pipe by means of a suitable stuffing-box joint. Steam " is thus supplied through the hollow shaft into the several com- " partments of the wheel, either through perforations in the " shaft itself, or through openings in branch pipes connected to " the shaft, such branch pipes being arranged in any convenient " manner in the compartments." " The introduction of the " steam alone into the dash-wheel is sufficient to improve greatly " the ordinary bleaching, washing, and cleansing and " posting " " effect of the wheel; but with the further introduction of " acids, alkalies, soap, and other bleaching or preparing ingre- " dients the dash wheel is made directly available as an excellent

" bleaching apparatus." The openings into each compartment may be closed, while the wheel revolves in the usual way, by tight-fitting lids.

[Printed, 10*d.*]

A.D. 1855, April 30.—N° 970.

DÉPIERRE, Pierre.—(A communication.)—" Improvements in " dyeing, part of which improvements is applicable to the manu- " facture of ink." This invention consists, " first, in substituting " for cream of tartar, in dyeing wood, a decoction of the female " flowers of the alder, which are gathered upon the mountains " during the month of August," "one hundred parts of well- " pulverized mountain fruit will furnish about one hundred quarts " of liquid, marking three degrees on the areometer. This quantity " will be sufficient, when mixed with the ordinary baths, for the " treatment of eight pieces of stuff."

" Secondly, the same fruits will also serve for dyeing black " any textile materials, either alone or in combination with " other dyeing matters, after the fabric has been submitted " to the following preparatory process, and which is called " mordanting." For this purpose " the following composition " may be employed with the greatest advantage, viz.—ten pounds " nitric acid at 365°, five pounds hydrochloric acid at 21°; these " acids are to be mixed, and forty pounds of copperas gradually " introduced." The fabrics are worked in a bath of this solution at " one quarter degree on the vinegar areometer," the temperature being raised to 45° in 10 minutes. " The fabrics are again worked " about for ten minutes, after which the fabrics are withdrawn " and allowed to remain quiescent for six hours before being " carefully washed." The fabrics so mordanted are dyed in a bath " made with a decoction of mountain alder fruit marking " three quarters of a degree in the vinegar aerometer." " The " boiling point is endeavoured to be attained in ten minutes, at " which temperature the fabrics are again worked about for a " quarter of an hour, after which they are withdrawn, and left " quiescent for six hours previously to being well washed in " water." To this bath is added " the juice of eight pounds " campeachy (logwood) for every vat of one thousand two hundred " quarts." " The bath of alder fruit is to be deprived of color

" by gelatine," " and the campeachy must not be added to the " bath until it begins to boil. A third bath (called the devel- " loping bath) is made with pyrolignite or acetate of iron at three " quarters of a degree on the vinegar areometer." Through this bath the fabrics are worked, arriving at the boiling point in ten minutes, and this temperature is maintained during quarter of an hour. After careful washing with plenty of water, a " dead black " is thus obtained. " For producing blue black " the first bath may " be employed with sulphate of iron at three degrees, or a small " quantity of sulphate of iron is added to the first black bath " above described."

"Thirdly, in restoring to all kinds of silk the whole or " a portion of the loss which they have undergone by the " cleaning process, and to cause them to take any color re- " quired in dyeing." For this purpose may be used decoctions " of alder flowers," " and of the wood nut, filbert, or other nut tree, " which are gathered in December, January, and February ;" " also the shells or calices which enclose the nuts before their " complete maturity." Silk (and a lfibrous substances) immersed and treated in such baths with proper precautions will gain considerably in weight and thickness, become supple, and acquire a fine lustre; and be in a superior condition to take on after dyes of any colour, especially fine blacks. Various practical recipes are given for dyeing " French blues," " pearl greys ;" also for dyeing with the " scarlet and violet monarda," " rose mallows," " the " purple flowers of the scabious " and for obtaining " maroon " tints " from the " flowers of the purple coreopsis," &c. A " very good ink " may be prepared by adding " protosulphate or " very pure acetate of iron " to a decoction of " alder flowers " " male and female."

"Fourthly, in thereby forming a substitute for gall nuts and all " their salts, and oak bark, in cases in which those substances are " employed."

[Printed, *6d.*]

A.D. 1855, May 1.—Nº 979.

BANKS, WILLIAM, HAMPSON, HENRY, and BANKS, JOHN. —" Improvements in machinery or apparatus for bleaching yarns " or thread, either in the cop or hank." The material to be bleached is conveniently arranged upon an " agitator or floor " within a chamber [capable of being closed], which may be made " of any required capacity " and form. " The first process is to " exhaust the air from within the chamber by means of air pumps " communicating with the chamber; the air having been ex- " hausted and a partial vacuum effected, the exhaust tube is " closed, and a passage is opened beneath the chamber (and in " connection with the bleaching liquid) which allows the liquid " to rise and occupy the vacuum within the chamber and sur- " rounding the cops; but for the more perfect saturation of " the entire cop by the bleaching liquid, force pumps are employed, " communicating with the top of the chamber, by which means " a greater density may be given to the bleaching liquid. The " agitator or flooring carrying the cops is now caused to revolve " rapidly any number of revolutions, alternately in opposite " directions, which effects the complete saturation of the cops. " By the adaptation of an air valve or tap on the top of the " chamber, the admission of the air will allow (when the com- " munication with the force pump is closed) the liquor to drain " off through the passage or tube beneath the chamber, when " the perfect bleaching is accomplished. The working of the " air pumps, force pumps, and the revolution of the agitator may " be readily arranged, and motion communicated from steam or " other power."

[Printed, 10*d*.]

A.D. 1855, May 12.—N° 1068.

GUILD, ADAM.—" Improvements in the process of bowking." The process of bouking is " usually effected by simply boiling the " goods in a solution of lime or alkali." " I propose to facilitate " this operation " by subjecting the materials " to the action of " the scouring solution in a closed vessel at a very high tem- " perature." The temperature may be raised " to 310° or 320° " F. equivalent to a pressure of ninety pounds on the square " inch." The liquor may be heated in a tubular boiler placed under the keirs; a pipe is made to communicate with the top of the boiler, and the top of each keir, and another pipe with the bottom of the keir and the boiler. When the keir is closed and the pressure obtained by a fire under the boiler, the liquor flows up the first pipe and on to the cloth, through which it percolates, and may return to the boiler by the lower pipe to be again propelled on to the cloth.

[Printed, 9*d.*]

A.D. 1855, May 16.—Nº 1102.

RICHARDSON, THOMAS.—"An improvement in dyeing cloth." "The manner in which I proceed first to prepare the cloth, and "afterwards to dye it is as follows:"—To the requisite quantity of water "for six ends of cloth" I add "four pounds of bichro-"mate of potash, three pounds of red argol (bitartrate of potash), "and six pounds of commercial sulphuric acid. I heat the con-"tents of the vessel to the boiling point, and then enter the six "ends or pieces of woollen cloth, which will average in length "about twenty-four yards each. I boil these for an hour, turning "them over by means of a winch to keep them even," and after being drained over a horse-tree they are ready for dyeing. "For "this purpose I fill another vessel with water, and put therein one "hundred pounds of logwood, four pounds of camwood, or other "red wood, two pounds of fustic, four pounds of the sulphate of "indigo, and three pounds of sulphuric acid in addition. This "mixture I heat to about two hundred degrees Fahrenheit, and I "then enter the six ends of cloth, and keep the liquor to the boil-"ing point for about one hour and twenty minutes," during which time the cloth should be winched as before. "I next remove them "from the dye vessel, and rince them in a washing machine along "with a little fullers' earth. With a smaller proportion of bichro-"mate of potash and logwood than is given above I find I can "obtain a blue colour resembling indigo-dyed blue." "When a "full black is required, it will be found an improvement to use a "little acetate of lead."

[Printed, 3*d.*]

A.D. 1855, May 17.—Nº 1116.

JOHNSON, WILLIAM.—(A communication.)—"Improvements "in the manufacture, treatment, and application of oily, resinous, "and gummy substances and soaps." "This invention relates, in "the first instance, to the manufacture or production of sub-"stances or compounds bearing a close resemblance to gutta percha "and caoutchouc or india-rubber." Also to the manufacture of a compound as "an imitation of skin or leather." Also to "the "purification of rosin oils or other oils and fats;" and to the saponification of melted rosin, by the addition of "dry carbonate "of soda or potash." "Carbonate of ammonia added to olive oil "forms a soap useful in Turkey red dyeing." The Patentee also describes various improvements in the manufacture of soaps, by means of the addition of "the slimy, glutinous, or gummy matter "contained in the stalks, leaves, fruits, and seeds of most plants; "or by the addition of oleate or stearate of alumina, magnesia, or "zinc." "Butter and other oily and albuminous substances may "be preserved by adding to them sulphate of lime, sulphur and "sulphides, turpentine, rosin, oil, tar, pitch, naptha, carbolic "acid." "The refuse from gasworks and from certain chemical "works, when such refuse contains sulphur, sulphuretted hydro-"gen, sulphides, carbides, or cyanides, may be treated with alkalies, "and the soapy solution so obtained, when decomposed by alum "or other salts or acids, produces blue and other coloring matters "suitable for the manufacture of mottled soaps and paints, and "for other purposes." "Soap makers' spent lye may also be "used for the manufacture of vegetable and alumina soaps and "lubricating matters, as well as for making soapy paints, for "which latter purpose they may be treated with sulphate of "zinc."

[Printed, 4*d.*]

A.D. 1855, May 21.—Nº 1131.

DIDOT, Paul Firmin.—"An improved process of bleaching "paper pulp, textile fabrics, and other substances or matters." "I effect the bleaching of paper pulp and other substances by "means of chloride of lime or other similar bleaching chloride, "acted upon by carbonic acid gas. By employing carbonic acid "gas to decompose the chloride, the bleaching effect is produced "with rapidity, without the danger of injuring the paper pulp or "other substance which arises when sulphuric acid or other strong "acids are employed." The carbonic acid, obtained from any suitable source, and purified if required, may be forced by a pump or other means, through "the textile fabrics and other similar articles, "immersed in a mixture of water and chloride of lime, or other "bleaching chloride," contained in a suitable vessel.

[Printed, 6*d.*]

A.D. 1855, May 23.—Nº 1160.

LEESHING, Francis.—" An improved method of preparing or " treating certain dye-stuffs, so as to obtain greater dyeing power." This invention chiefly refers to " the drugs known in commerce as " quercitron bark, weld, and flavine (and is applicable also to dye " stuffs other than madder root), and consists in improving the " dyeing qualities of those drugs, by boiling them with diluted " acids (or with saline or metallic solutions containing portions of " free acid, or yielding portions of free acid during boiling), or in " boiling them first with weak solutions of caustic soda or potash " or ammonia, and subsequently with acids (preference is given to " sulphuric acid or muriatic acid). After the boiling and cooling, " the acid liquid is removed from the solid part by filtration or " decantation, and the latter is subjected to repeated washings " with cold water until it is thoroughly freed from the adhering " acid (or the acid liquid, before being subjected to filtration, may " be neutralized with carbonate of soda or potash, or ammonia, or " with caustic soda, or potash, or ammonia, and then filtered and " washed." The residue may then be pressed, or pressed and dried, and is ready to be employed in dyeing. In practice a tub may be used capable of containing 800 gallons, " into which is " placed four or five hundred gallons of water and one cwt. of " sulphuric acid, of 1·830 sp. gr., or two hundredweight of " muriatic acid, of 1·192 sp. gr., and five cwt. of the drug." The whole is well mixed and then heated and boiled for an hour, after which the " quercitrine," " flavetine," " luteoline," &c., thus produced, is washed and pressed only, or pressed and dried, when it is ready to be used in dyeing. " The treatment described may " be modified so as to heat or boil the dye stuffs mentioned in the " foregoing, with weak solutions of alkalies, previously to the " application of acids."

[Printed, 4*d*.]

A.D. 1855, May 24.—Nº 1168.

SEEGERS, Auguste Frédéric, Godfrid.—(Provisional Protection only.)—" Improvements in the manufacture of hangings " of paper and of textile fabrics." " These improvements consist " in printing in gold, silver, copper, or colours upon flock hang- " ings, that is to say, paper or a textile fabric, covered with flock

" of wool, cotton, silk, or other similar material, by means of " blocks of copper engraved en creux or in relief, and impressed " hot upon the paper or fabric by means of a fly press or any other " suitable means. The adhesion of the metal or color is effected " by applying to the parts where the engraved block will strike, a " mordant in powder, as gum lac, or other fusible material, and " placing upon it a thin sheet of metal or stratum of color. The " pressure of the heated block will impress the design, and the " surplus material is removed by a brush. By omitting to use " metallic leaf or color in powder and employing the blocks cold, " imitations of Utrecht or Amiens velvet may be obtained."

[Printed, 8*d*.]

A.D. 1855, May 24.—N° 1179.

ADDENBROOKE, Joseph.—" Improvements in machinery for " folding envelopes." The Patentee claims "the application of " the principle of stamping in cameo for a device formed on " coloured or white ground, and also the introduction of printing " (by letter-press or any of the known modes of printing) " on envelopes in combination with machinery for folding envelopes." After the surfaces of the die and type have received the ink or color (by means of suitable furnishing and transmitting rollers), the envelope blank is placed (by mechanism) and the impression made by stampers, cams, or other known means.

[Printed, 6*d*.]

A.D. 1855, May 26.—N° 1205.

NEUFEFR, Gottlieb.—(Provisional Protection only.) "An " improved mode of producing patterns upon floor cloths and " other ornamental coverings for floors, walls, tables, and other " surfaces." The prepared material is first printed with a colour which is capable of being washed away, and "when this " is dry I fix it on those portions of the prepared material " where it is to remain as a portion of the ultimate design by " covering over those portions with a coating of lackering or " varnish prepared for the purpose, and either coloured or " colourless, as will best suit the design. When this lackering or " varnish is dry, all those portions of the pattern in the delible " colours which have not been covered, and which are not wanted " in the ultimate design, are washed away. Next I produce a

" pattern in imitation of a second portion of the design, as the " walnut wood, in the same way, fixing as before the portions " which are required and washing away the rest. I repeat these " processes until the entire design, whatever it may be, has been " produced and fixed upon the prepared material. When this has " been done, I cover over the whole with several coatings of " lackering or varnish to make it durable."

[Printed, 3*d.*]

A.D. 1855, May 28.—N° 1218.

LEESE, Joseph, junior.—" Improvements for obtaining colouring matter." This invention consists in extracting indigo from waste "linen and cotton rags of every description which have been " dyed or printed with indigo." "First, I saturate the rags with " a solution of any protosalt of iron, and then treat the rags with " an alkali." "Second, I saturate the rags with a solution of any " protosalt of tin, and then treat the rags with any alkali, or I " saturate the rags with a solution of protoxide of tin in an " alkali." "Third, I treat the rags with alkali circulating through " metallic tin in a minute state of division." "Fourth, I submit " the rags to the action of double sulphuret of arsenic and sodium " or potassium, produced by the mixture of sulphuret of arsenic " and soda or potash." "Fifth, I saturate the rags with glucose, " and then with alkali; or I saturate the rags with a mixture of " glucose and alkali." " In the above processes I find it desirable to use heat, although they may be used cold." "The " vessels in which these processes are conducted are arranged in " a series, so that the liquors used may be circulated by pumps or " otherwise from one to the other." "The blue rags may be " entered into the first vessel of the series, and taken out of the " last, the materials used for extracting the indigo being entered " into the latter and circulated through all the others seriatim."

[Printed, 3*d.*]

A.D. 1855, May 31.—N° 1250.

BROOMAN, Richard Archibald.—(A communication from Halden, Charles Joseph Eugene Abder.)—" Improvements " in dyeing cotton threads, yarns, and twists." "The cotton " threads, yarns, and twists are first prepared for being dyed " by immersion in an alkaline bath, which removes the gum,

" grease, or foreign matters which they may contain." To dye " red, the yarns, &c." "receive a mordant composed of either an " alumine of soda alone, or a salt of tin, or of zinc, with or without " an acetate, pyrolignite, or other salt of alumina," suitably thickened. They are then dunged warm or cold with "dung," alone or with " silicate of soda," "chalk," "chromate of potash;" or " salt of ammonia." The yarns, &c. are then washed and dyed with "madder, madder flower, garancine, alizarine, or other " description of madder, to which ox blood, sumach, gall nut, or " oxalic acid or other acid may be added." The yarns, &c. are then "brightened" by soap and water and acids successively or " through alkaline and acid baths." "To dye violet and lilac," the yarns, &c., receive a mordant consisting of " acetate, nitrate, " or other salt of iron (to which arseniate of copper may be " added) " suitable thickened. They are then dunged and dyed " as for red," and are " brightened through chloride of lime, soda, " or potash, &c. and soap and water." "To dye brown;" the mordant employed is a mixture of the mordants for dyeing violet and red, and the yarns, &c. are dunged and dyed as above, and brightened "by passing them through acids and alkaline baths " successively."

[Printed, 3*d*.]

A.D. 1855, June 1.—N° 1256.

WHYTOCK, RICHARD.—" Improvements in colouring yarns " or threads intended to form elements of various loom fabrics " and for crochet work and knitting." The Patentee claims, " first, the printing by pulleys pressing the yarn upwards against " a glass plate or flat substance, under which a considerable " length of yarn or thread be placed evenly ready to be printed." " Second, the printing by pullies without table or cylinder, but " colouring between revolving pulleys." The glass plate or flat substance referred to in the first claim, is " strongly framed and " hinged upon the frame " so that it can readily be turned back for the purpose of being cleaned, and when placed over the yarn, to be printed " serves the purpose of a roof, against which the " charged pulley presses the yarn." " The following is the " method by which the pulleys are applied :—An apparatus consist- " ing of a color box and pulleys, a couple of rails, and two " sliding bearers, a connecting shaft, and a spiral or screw are "combined as shewn (in the drawings), and are used for passing "the color box to and fro under the glass plate. The screw "propels the box and pulleys from side to side of the frame. "This combined apparatus is caused to travel along the racks "and slides, either by short steps by a pall worked by the left "hand, or by longer steps when required by a handle upon the "connecting shaft, which again is furnished with toothed wheels "on each end, to ensure the parallel motion of the moveable "apparatus." "Also, instead of, as heretofore, using one pulley "revolving partially immersed in the colour, and imparting by its "upper surface the color to the yarn, I use two pulleys, the one "above the other, but not in actual contact with it, yet so nearly "so that the upper one lifts the color from the verge of the other "or lower pulley [and applies it to the yarn], while the latter is "made to revolve by means of an open band in a contrary direction to supply the color from the box. The rotary motion "given to the upper pulley as it traverses is thus communicated "to the lower pulley. In this way the quantity of color may "be equalized and regulated both to economize the color and to "ensure better work."

The second part of this invention may be effected by dispensing with the glass plate, and substituting for it a pressure pulley which is caused to travel and revolve exactly over the color pulley, "the "two pulleys pressing the yarn between them." "The upper "pulleys first motion is to keep time with the travelling color "pulley as it passes from side to side of the frame, but it must "also keep time in revolving round its centre with the color "pulley below, and beside its motion at its verge or periphery "must be also exactly the same as its motion across the threads, "so that the passage of the two pulleys shall not displace or disturb the threads." These motions are effected in a simple manner by means of a band or cord, which, while it coils and uncoils, causes the pulley to slide to and fro upon an iron rod, and also by another small cord stretched in a line with the pulleys lower surface and passing round its verge. (See Drawings.)

[Printed, 10*d.*]

A.D. 1855, June 7.—N° 1301.

HEAP, Moses.—"Improvements in machinery or apparatus "for 'grinding' dye woods or roots, and for similar pulveriz-

" ing purposes." This invention consists in the application of "a series of rapidly revolving circular saws (from thirty-" two guage to eighteen inches width on their peripheries) " placed on one shaft, for the purpose of 'grinding' or pul-" verizing dye woods (madder roots), or any such or similar " materials or ingredients, or for similar pulverizing purposes." " This improved machinery may either be employed directly upon " the log, or be caused to operate upon portions or pieces, or upon " the ordinary waste of chipping machines, called "grips" or " splinters; the principal feature of novelty consisting in the rapid " revolution of a great number of circular saws placed upon a " roller with intermediate washers between the saws, such saw " roller working against the edge of a feeding plate or table, " which is nicked or slotted, so as to receive the edge or periphery " of teeth of each of the saws of which the roller is composed; " the fine portions of the woods as thus cut, by being placed in " contact with the saw roller, falling in a pulverized state between " between the saw and its bed plate." The saws employed "must " be arranged as to guage, extent, diameter, coarseness of tooth, " width of periphery, &c., according to the material to be operated " upon." The material to be operated upon may be fed on to a slanting frame, and is caused to descend to feed the saws by means of a rack and pinion movement.

[Printed, 6*d.*]

A.D. 1855, June 11.—N° 1335.

LIPPMAN, Isaie.—"Improvements in dyeing or coloring the " hides and skins of animals." "This invention consists, in the " first place, in submitting the hides or skins to the process of " dyeing before they are tanned. According to the plans now in " use, the skins or hides are usually tanned first, and then dyed or " colored afterwards. By reversing these processes, however, I " have discovered that considerable advantages are obtained;" cheaper and better materials may be used and the colour is more permanent. " Second, relates to a mode of dyeing the skins or " hides so as to present a variegated or marbled appearance. " This is effected by simply crumpling the skins up, and tightly " securing them in this state while they are submitted to the action " of the coloring matter in the dyeing vat." This may be repeated in different "colored dyes," and may be applied either " before or after the skins or hides have been tanned." "Third, " relates to a method of dyeing or coloring skins or hides in such " a manner that a metallic lustre may be given thereto." "The " dye wood (or extract) which I have found most suitable for this " purpose is logwood, but other dyes may be employed." "When " the skins have been submitted for a suitable length of time to " the operation of the dye, they are afterwards subjected to the " action of chemical salts (by preference alkaline salts)."

[Printed, 3*d*.]

A.D. 1855, June 18.—N° 1383.

LITTLE, William.—"Improvements in printing machinery." These improvements consist in "the application of bent electrotype and compound electrotype and stereotype plates in cylinder " printing machines." "The object of this invention is to prepare " and employ bent electrotype plates, or bent electrotype plates " combined with stereotype plates, and so that they may be " printed from by a cylinder printing press." "I produce these " plates as heretofore, but in place of using them flat I cause them " to be bent to such a curvature as to admit of their being fixed " (by suitable means) to a cylinder;" and the best means of " bending the electrotype plates, or combined electrotype and " stereotype plates, is by means of three rollers, set in such a manner that the axes of the two lower rollers may be adjusted to " and from each other, and also in such a manner that the axis of " the upper roller may be raised or lowered by such means, and " by giving motion to the upper roller a plate may be bent to the " desired curvature."

[Printed, 9*d*.]

A.D. 1855, June 18.—N° 1388.

BESSEMER, Henry.—"Improvements in the manufacture of " rolls or cylinders used in the lamination, shaping, and cutting " of metals, in crushing ores and other substances, and in calendering, glazing, embossing, printing, and pressing." These improvements consist, "first, in the casting or founding of rolls or " cylinders in molten steel for the purpose of laminating, shaping, " and cutting of metals for crushing ores and other substances,

" and for calendering, glazing, embossing, printing, and pressing." " Secondly, in the casting or founding of rolls or cylinders with a " mixture of molten steel and pig or refined iron " for the above purposes. " For some purposes the desired degree of hardness " may be obtained by the quality and proportions of iron and " steel used in their manufacture." "From one third part to " two third parts of steel with one part of good No. 2 cold blast " pig iron will form a metal suitable for general purposes." The proportions may be varied to suit the different kinds of rollers required; and additional hardness may be given by casting " in a " chill," or, " by quenching the roll or cylinder in water or oil " when in a heated state."

[Printed, 4*d*.]

A.D. 1855, June 19.—N° 1394.

HARTMANN, CHARLES ANTOINE.—" Improvements in the " preparation or combination of colours for printing stuffs and " textile fabrics." This invention consists, " firstly, in the preparation of a steam madder red by the mixture of extract of " madder with soap, or the materials of soap, or by the mixture of " extract of madder with solution of ammonia and soap, or the " materials of soap." " Secondly, in the preparation of a steam " madder puce by the addition to such steam madder red of " variable quantities of extract of campeachy wood, or of the " extracts of campeachy wood and catechu." " Thirdly, in the " preparation of a steam indigo blue, by the mixture of precipitated indigo with magnesia." " Fourthly, in the preparation " of a steam green, by mixing a salt of lead with the aforesaid " steam indigo blue, and dyeing or raising the color in a solution " of bichromate of potash." " Fifthly, in the preparation of steam " colors by the addition generally of other coloring matters, and " particularly of the extracts of dye woods to the extract of madder and soap, or the materials of soap, so as to obtain in steam " colors the effects of mixed dyes."

"The following proportions produce a good red colour:— " Three pounds weight of fine sifted extract of madder, having " twenty-five times the strength of ordinary madder; one and a " quarter pounds of powdered soap; one gallon of solution of " ammonia; two gallons of solution of gum senegal. The ex-

"tract of madder is mixed with the solution of ammonia, and digested for several hours. The powdered soap is then added, and afterwards the gum water." "I also add one quart of alcohol."

"The following mixture produces a good puce colour:—Two gallons of the aforesaid red colour, half a gallon of preparation of catechu, and one pint of extract of campeachy wood, of specific gravity 1·160. The preparation of catechu is made by mixing three pounds ten ounces of powdered catchu with half a gallon of solution of ammonia." These colours should be fixed with steam at a pressure of "three atmospheres."

"The following proportions produce a good blue colour:—Ten pounds of precipitated indigo, one gallon of solution of gum senegal, one pound and a quarter of magnesia." A green may be produced "by mixing the aforesaid blue thickened with gum water, with a salt of lead."

Various other colours may be prepared by "mixing the colouring matter of madder with soap or the materials of soap and the colouring matters of red woods. Brazil wood, fernambuc wood, sanders wood, sumach, catechu, quercitron, persian berries, chesnut bark, and other colouring matters ordinarily employed in dyeing." Such colours may be printed by the usual means "upon stuffs or fabrics prepared with an aluminous mordant, and they are fixed by steam; the blue color may also be printed upon cloth which is not mordanted."

[Printed, 4*d.*]

A.D. 1855, June 21.—N° 1420.

RIOUX, Pierre Francois, and DE PARIENTE, Leon.—(A communication.)—(Provisional Protection only.)—"Improvements in the fixing of metallic ornaments upon paper, flock, leather, cotton, silk, or any other fabrics to which such ornaments, may be applicable." We place the material to be ornamented "upon an elastic or flexible bed which is placed on a table, which flexible bed must be made of vulcanized caoutchouc, or any other material which will bear heat; we then have blocks, cylinders, or dies of metal, upon which are engraved the designs we wish to represent. These blocks, cylinders, or dies are heated and pressed upon the fabric, giving the fabric a slight impression of the design. We then place upon the place where

" the design has been so printed *dry* albumen in powder, gum " lac and rosin, each in powder, spirit varnish, or copal varnish, " or any other suitable body that will cause the metallic surface to " adhere. After any of these preparations are carefully sifted " over or printed on with a brush upon the surface of the part " impressed, we take the metallic leaf, (say gold or silver, for " instance,) and place it over the powder or varnish so put on, and " dab it down with a piece of cotton, wool, or cloth. The block, " cylinder, or die is now again pressed over the surface in the " same place it was in the first instance, and the design is fixed " upon the fabric. When leather or such substance is used, we " require the albumen and attaching bodies to be *wet*, or in a " liquid state."

[Printed, 3*d*.]

A.D. 1855, June 23.—N° 1440.

SOREL, STANISLAS TRANQUILLE MODESTE.—" A machine for " applying adhesive matters on stuffs, and also for applying on the " said matters other substances or stuffs." This invention consists " in the general arrangement of machinery for waterproofing tissues ;" " in the employment of a sheet of vulcanized caoutchouc " or other analogous material, for spreading the waterproofing " composition on tissues ;" and, lastly, " in the arrangement of " the machinery, by means of which I introduce steam for heating, " which permits of applying to fabrics all compositions softening " by heat, especially gutta percha, which is applied and dissolved." The material to be coated is caused to pass over a cylinder which may be heated by steam, and under an apparatus resembling a " doctor " box " placed over the cylinder. The coating composition is placed in this apparatus, which may be heated with steam when desired. On the under part of it, and projecting about one eighth of an inch, is fixed a strip of " vulcanized caoutchouc," which acts as an elastic doctor, and thereby regulates the quantity of coating composition applied to the surface of the stuff. The stuff so coated is caused to pass forward to be " flocked " if desired, then pressed between rollers, brushed, and dried over a steam chest ; or it may meet another sheet of tissue or paper unwinding from a roller and pass with it between pressing rollers, and on to the drying steam chest.

[Printed, 11*d*.]

A.D. 1855, June 26.—N° 1458.

POOLE, Moses.—(A communication.)—"An improvement "in the manufacture of printing rollers or cylinders." "The "object of this invention is to obtain the requisite copper "surfaces of printing rollers or cylinders at a less cost than "heretofore. For this purpose iron rollers or cylinders of nearly "the required diameters are employed, on to the surfaces of "which are deposited by electric currents coatings of copper." "After having carefully scraped or cleaned the said part (the "surface of the iron centre), and having covered the ends "or gudgeons with gutta percha or any other convenient "material, the cylinder or axle-tree is to be placed in an horizontal "position in the vat or metallic bath, to which apparatus "is arranged so as to procure a constant electric current, and "also during about a week a slow deposition of the metal (generally "copper), which slow electric action may afterwards be "rendered more powerful, according to the more or less hardness "which may be required in the texture of the metal thus deposited "on the surfaces, as is well understood when obtaining electro "deposits for other purposes; and in order to produce an equal "thickness of the coationg, the cylinder or axletree is caused to "turn slowly at intervals in the bath by any suitable mechanical "means."

[Printed, 5*d*.]

A.D. 1855, June 28.—N° 1473.

MOREAU-DARLUC, Charles.—"An improved mode of "separating substances of different nature or composition by "means of displacement and substitution." "My invention is "applicable to the treatment of all such substances containing "certain parts which may be made soluble by any suitable menstrum "and are wished to be abstracted from them; such, for "instance, as the refining or purification of sugar, or the extracting "of saccharine matters from substances containing the same; "the extraction of tanning liquids from tan, worts from malt; "the extracting of juices, coloring or dyeing matters, essential, "aromatic, or other oils, gummy, resinous, or medical, or chemical "principles; decomposing, impregnating, retting, bleaching,

" washing, cleaning, drying, or dessicating operations, and whatever may be the substances on which these operations take place." "And consists in forcing a jet of compressed or non-compressed air, or any suitable gas or gases, (either in a moistened or in a dry state," "to pass from or through a suitable apparatus, in which the same are dilated or non dilated either by the application of heat generated by any combustible matter, electricity, or any other suitable means, and applying the expansive force of this air, gas, or gases to exercise a pressure on the liquids, atmospheric air, gas or gases contained in a suitable vessel, above the substances of which certain parts are to be decomposed or not, and extracted or separated by displacement and substitution, (that is to say) by the percolation of any suitable liquid, gas, or gases; or a partial vacuum may be formed, or an aspiration take place under the said substances, of which certain parts are to be extracted; or both methods may be applied simultaneously, conjointly, or separately."

The substance to be acted on may be placed in an air-tight vessel on a perforated false bottom, and the air or other agent is caused to pass in by a pipe on the upper part of the vessel and down through the substance. This action may be increased by producing a partial vacuum through a pipe underneath.

[Printed, 4*d*.]

A.D. 1855, June 29.—N° 1483.

HUGHES, Edward Joseph.—" An improved method of concentrating the colouring matter of madder, munjeet, spent madder, or any preparations thereof." "I take a fibrous or porous substance, such as cotton, wood, sponge, or similar materials, and steep it in a mordant calculated to combine with the colouring matter of madder, &c. When the said material is thoroughly saturated, I subject it to the action of the necessary processes to remove the acid, and thoroughly precipitate the mordant on the material, as is usually done in calico printing. I then put the material thus prepared into water along with the madder or any preparations thereof; I heat the water and leave it a sufficient time to allow all the colouring matter to combine with the mordant fixed on the material; after which I expose this material to the action of a strong acid, such as sulphuric,

" muriatic, &c., either slightly or much diluted for a sufficient " length of time to dissolve or decompose the mordant; and carbonise or dissolve the fibrous or porous material; when this is " accomplished I put it on a filter, and wash and neutralize it " until the acid is removed. The residue is then the concentrated " colouring matter I wish to obtain. Or I take the mordant " itself, such as iron, chalk, or any suitable mordant properly " chemically prepared for the purpose, which I place in a heated " bath along with the madder or any preparation thereof. I pass " the water which holds the colouring matter in solution through " and through these mordants until all the coloring matter is " combined therewith; I then expose these dyed or saturated " mordants also to the action of a strong acid, such as muriatic, " sulphuric, &c. slightly or much diluted, a sufficient length of " time to dissolve or decompose the mordant, and I then place " the whole on a filter, and wash and neutralize it until all the " acids is removed. The residue is the concentrated colouring " matter I wish to obtain."

[Printed, 3*d*.]

A.D. 1855, July 3.—Nº 1499.

MUCKELT, Robert.—" Improvements in machinery for etching " or engraving designs on cylindrical or other surfaces." "The " nature of this invention consists in transferring designs for " etching or engraving purposes from a flat surface to cylindrical " or flat surfaces, by means of pendulum levers, acting on adjustable studs, and other parts in combination therewith, whereby " the proportion in size between the original design and that produced on the surface to be etched or engraved may be varied to " any extent within certain limits." In this invention there are two vibrating pendulum levers adapted to the usual engraving machine, by one of which "the requisite traverse motion is given " to the diamonds, and by the other" a partial rotatary motion to " the cylinder." The position and adjustment of suitable " studs" "determine the proportion in size between the original " design and that of the design to be etched or engraved on the " cylinder." "By lengthening the levers beyond their fulcra as " well as certain slots the design produced may be reversed."

[Printed, 10*d*.]

A.D. 1855, July 10.—Nº 1540.

KOPP, Emile.—" Improvements in mordants used in printing " and dyeing." This invention consists, " first, in the use of the " hyposulfites instead of acetates for the preparation of mor- " dants." " Secondly, in the use of acid or alkaline solutions of " arseniates, phosphates, and chromates, instead of acetates, for " the preparation of mordants." " And, thirdly, the use of " aceto-nitrate of bismuth, either alone or mixed with iron salts, " as mordants for garancine colours." The specification gives various modes of making the hyposulphite of alumina and other hyposulphites, and the precautions necessary to be taken during the operation, and in their applications. A cheap and good alumina mordant may be prepared as follows:—" A hot solution of alum " or sulphate of alumina is decomposed with a clear alkaline solu- " tion of chloruret of calcium (obtained in dissolving as much as pos- " sible lime in the solution of chloruret of calcium) in such a quan- " tity that only two-thirds or three-fourths of the alum or the sul- " phate of alumina may be decomposed. After cooling, the mixture " is filtered, and the precipitate of sulphate of lime is well pressed. " The clear liquid, containing basic chloruret of alumina, can now " be thickened with gum, starch, or flour, in the manner generally " employed in thickening alumina mordants. When the " thickened paste has cooled down to about ninety degrees Fah- " renheit, hyposulfite of soda is added in such a quantity that " again only two-thirds or three-fourths of the hydro-chloric and " sulphuric acids combined with the alumina may be saturated " by the soda of the hyposulfite; the color being well mixed is " now ready for use." The " hyposulfite of chrome" may be prepared by decomposing " chrome alum, or sulphate of chrome " by hyposulfite of lime, the soluble hyposulphite of chrome " being separated by filtration and pressure from the precipitate of " sulphate of lime." Hyposulfite of iron is used exactly in the same manner as the acetate of iron, and " may be prepared in de- " composing crystallized sulphate of iron-oxydul by its weight of " crystallized hyposulfite of lime." The mordant of " hyposul- " fite of tin" may be prepared " by adding to cold solutions of " proto or per-chloruret of tin previously thickened (when " thickening is required) such a quantity of hyposulfites of soda " or lime, that only one-third or one-half of the tin salts may be " decomposed by the alkaline hyposulfites."

"Having obtained the insoluble arseniates and phosphates (by " precipitation), I prepare my acid mordants in dissolving, with " the assistance of a gentle heat, the arseniates of zinc, mangan, " alumina, chrome, copper, protoxyde and peroxyde of iron, and " of protoxyde of tin in as great a quantity as possible, in strong " acids, and, by preference, in a mixture of four parts of strong " hydro-chloric acid with one part of nitric acid." "I prepare " my alkaline mordants in dissolving as much as possible the " arseniates and phosphates of zinc, copper, and peroxide of iron in " strong liquid ammonia, and the arseniates and phosphates of zinc " alumina, chrome, and tin, in caustic liquid potash or soda." The "chromate" solution may be prepared "in precipitating a " solution of a copper salt, with a solution of alkaline chromate " of potash or soda. The precipitate, after being well washed " and pressed, is dissolved in strong liquid ammonia, forming a " beautiful green solution. In a few cases the solution of chromate of copper in nitric acid can also be used as a mordant." Such mordants being prepared may be thickened with gum, leiocome, starch, or flour, as the case may be, and after printing, aged, dunged, and dyed in the usual way, with some exceptions stated in the specification. Several new and beautiful colours may thus be obtained.

The "aceto-nitrate of bismuth" may be prepared "by dissolving as much bismuth as possible in hot nitric acid diluted with " half its weight of water. In cooling, yellowish crystals are " deposited; these crystals, dissolved in acetic acid at eight degrees of Twaddle's hydrometer, constitute my improved mordant." "The aceto-nitrate of bismuth mordant dyed with " garancine, produces peculiar bright crimson shades," and when mixed with a solution of "arseniate of iron" in nitric acid, and dyed with garancine, gives peculiar "dark crimson and purple " crimson shades."

[Printed, *4d.*]

A.D. 1855, July 13.—N° 1569.

HIGGIN, James.—(Provisional Protection only.) "Improvements " in clearing and brightening dyed and printed fabrics." "My " invention consists in a modification of the ordinary clearing " process applied to dyed or printed fabrics when certain dye stuffs are used. It is usual to pass goods dyed garancine, garanceux, or other preparations of madder, either alone or mixed with other dye stuff, through a solution of chloride of lime in water, then dry or expose them to steam, rinse them in water, and dry them. I propose to add to the chloride of lime solution a liquid containing silicic acid in solution, and use this mixture instead of the chloride of lime, as above, finding thereby a great improvement in the whites and colors of printed goods, and consequently in the colors of self-color dyed goods."

[Printed, 3*d*.]

A.D. 1855, July 18.—N° 1609.

RIOT, THÉOPHILE LOUIS MARIE, and DEHAIS, SYLVAIN GUILLAUME PAUL.—(Provisional Protection only.) "An improvement in the treatment of silk." "The process consists in submitting wild silk to the action of a solution or solutions of alkali, particularly potash, soda, or ammonia, in water, which bath or baths require to have the proper strength, and to be employed at a suitable degree of heat. The silk is afterwards duly washed in water, in order to deprive the same of all adhering alkaline matters, and may then be submitted to any of the usual dyeing processes. Our process when applied to the ordinary sorts of silks renders them better for receiving dye stuffs, and particularly black colors."

[Printed, 3*d*.]

A.D. 1855, July 18.—N° 1611.

ALMGILL, THOMAS.—(Provisional Protection only.) "An improved mode of printing on calico and other fabrics and matters, and in machinery or apparatus to be employed therein." "The novelty (of this invention) consists in having the pattern or device cut or etched through thin copper, tin, wood, or other substance, and put on a wire fabric, which fabric and pattern will be fastened on a hollow perforated cast-iron cylinder, the perforated cylinder with pattern revolving round a fixed mandril, hollow at one end, to which is fastened a color feeding box, working color-tight inside of the perforated cylinder. The wire is used with

" a view to distribute the color equally, and not as the sole means " of transferring the pattern to the cloth, though I propose in " some patterns to use only wire in the way mentioned. From " the color box without I admit through the hollow end of the " mandril the color employed in printing to the fixed color box " placed within the perforated cylinder." "The pattern to be " printed may be drawn on the wire work itself in a solution of " gutta percha or other preparation, or etched out or cut through " in copper, tin, gutta percha, wood, or other substance." This invention may also be applied to "flat press" printing.

[Printed, 3*d.*]

A.D. 1855, July 18.—N° 1619.

KING, James, and HOLDSWORTH, John.—(Provisional Protection only.) "Improvements in the manufacture of certain " woven cotton fabrics." "This invention relates to the manu" facture of colored fabrics, and especially to that class of fabrics " known as fustian. It consists in applying to this purpose " warp or weft spun from cotton wholly or partly dyed the " color required in the fabric prior to being spun; or, in other " words, it consists in dyeing cotton intended to be spun and " woven into colored fabrics while in a raw state, or in some " stage of its preparation for spinning."

[Printed, 3*d.*]

A.D. 1855, July 19.—N° 1632.

WOOLBERT, John Henry.—"Improvements in the prepara" tion of extracts from madder, and in the application of the same " directly to fabrics, in order to dye or color them." The "extract " of madder" may be prepared as follows:—"I take a kilo" gramme (2·205 pounds avoirdupois) of madder, and having " reduced it to an impalpable powder, I macerate it for 24 hours " in a liquid which I call a solvent, composed of a kilogramme of " volatile alkali of 22° of strength, Baumé, and one hundred " grammes (154·3 grains troy) of alcohol. I dilute this mixture " with a kilogramme of water, and I place the whole over a slow " fire for thirty or forty minutes, during which time it should be " well stirred. I now remove it from the fire and add one hun" dred grammes of alcohol. I place this mixture when become

" homogeneous in a canvas bag, and submit the whole to pressure " in some kind of mechanical press, in order to extract the color- " ing matter. The madder remaining in the bag is then removed, " and again treated in the same way. It is replaced in a bag, and " submitted to pressure a second time.

"When the madder has been thus treated, I place it in one " kilogramme of ammoniacal water for twelve hours, and after- " wards submit it for a third time to pressure. This third extract " contains a small quantity of coloring matter, and I use it in " treating madder for the first or second time in place of the water, " with which I have above directed the mixture of madder, volatile " alkali, and alcohol to be diluted. The solvent of which I have " spoken may be composed of poppy oil, of alcohol mixed with " water, or of caustic alkali." The "exhausted madder" may be treated with "sulphuric acid," as for garancine, and used in dyeing.

The "extract of madder" so prepared may be thickened with " dextrine or any other known thickening," and applied "to the " fabrics, with the view of dyeing or coloring them." "A mor- " dant of acetate of alumina is used when a red or rose color is " required and one of iron when blue or black is wanted."

[Printed, 4*d*.]

A.D. 1855, July 21.—N° 1654.

GOODYEAR, Charles. — (Partly a communication.)—(Provisional Protection only.) " Improvements in the surfaces used " for printing." "The object of this invention is to apply hard " manufactures, produced by compounding india-rubber and sul- " phur, with or without other matters, whether in printing from " surfaces or plates. For this purpose, when the printing is to be " from raised surfaces, moulds of metal or other suitable material " are prepared, according to the raised letters or devices which are " intended to be printed from; and then a compound of india- " rubber and sulphur, with or without other matters, preferring to " use at the rate of about one part by weight of sulphur to two " parts by weight of india-rubber, is introduced into such moulds " and pressed therein, and then subjected to high temperatures, in " order to obtain the change into hard material; or blocks being " first formed may be cut to produce the printing surfaces thereon. " And when for intaglio printing, blocks or plates of the material,

" first prepared with smooth surfaces, may be engraved in like " manner to copper or other metal plates. And when for similar " printing to lithography, a compound of india-rubber, sulphur, " and powder of lithographic stones or oxide of zinc, subjected to " high temperature, is used."

[Printed, 3*d.*]

A.D. 1855, July 24.—N° 1676.

WOOD, Benjamin.—" An improved preparation of colouring " matter for the manufacture of ink, artists' colours, and for other " purposes for which such coloring matter may be applicable." One of the objects of this invention is "to produce (from cochineal) a coloring matter that may be employed for the manufacture of ink, which will not be liable to corrode or act on the " metal of steel or other metallic pens." " I take, say, nine " ounces of common carbonate of soda, and dissolve the same in " twenty-seven quarts of water, to which I add about eight ounces " of citric acid, and when this solution has been bro^t to the " boiling point I put in one pound and a half of cochineal, and " continue the boiling operation for about one hour and a half, " after which I strain the liquor and allow it to settle and become " cool. The clear liquor is then boiled up again, and about nine " ounces of common alum added thereto, and the mixture kept " boiling for five minutes, after which the liquor is drawn off into " coolers and allowed to precipitate, which it will do as the liquid " gradually cools. The liquid should be allowed to remain quiescent for two or three days, in order that all the solid matters " may be deposited, and the liquor become perfectly clear." The precipitate is then washed in distilled water, and afterwards dried. The dried precipitate may be employed " in the manufacture of " artists' colours;" or it may be dissolved in " caustic ammonia" and " the colouring matter thus prepared may be employed for any " of the purposes for which a liquid preparation may be required." This solution, when diluted with distilled water, will make a " red " ink," and the decomposition of which will be prevented by the addition of a " few drops of essential oil of cloves or oil of creosote." " The above improved preparation of coloring matter " may be used for staining or dyeing, or for any of the various " purposes to which coloring matters are now applied."

[Printed, 3*d.*]

A.D. 1855, July 26.—N° 1705.

MARDON, William.—(A communication.)—" An improve-" ment in treating garancine." " This invention consists of " neutralizing the acid which remains in garancine by ammoniacal " gas. For this purpose the garancine is placed on a suitable " vessel, with a perforated false bottom, and ammoniacal gas is " evolved or introduced below, in such a manner as to rise up " through the garancine. The ammoniacal gas also acts on and " modifies the lime in the garancine, and improves its quality for " the purposes of dyeing." For this purpose a mixture in water " of thirteen pounds of sal ammoniac and fourteen pounds of " lime " is put on the bottom in the vessel; " then twenty-five " pounds weight of common garancine is put on to the cloth " in the basin." The ammoniacal gas, as evolved by steam " during 3 to 3½ hours," passes up through the garancine, which is kept covered by another cloth.

[Printed, 6*d*.]

A.D. 1855, August 6.—N° 1782.

LILLEY, John.—(Provisional Protection only.) "Improvements " in obtaining textile fibres, and in the manufacture of pulp and " dye." This invention " consists in the employment of a plant, " which is the growth of West Africa, and known at the Came-" roons by the name of medickey. To obtain textile fibres I " bruise, crush, or beat the stem of the plant or tree, so as to " detach the woody portions therefrom, when the fibres may be " afterwards treated in the same manner as flax and hemp. To " manufacture pulp and dye from these fibres, I submit them to " simple infusion or maceration in warm water, or to a steaming " operation, and thereby obtain the dye in solution, leaving the " fibrous pulp, which may be bleached by any known process, for " any purposes for which it may be suitable."

[Printed, 3*d*.]

A.D. 1855, August 11.—N° 1824.

PRETSCH, Paul.—" Improvements in the application of certain " designs obtained on metallic surfaces by photographic and other " agency." " This invention refers to certain further improve-" ments in the application of my patented process," " sealed 9th

" November, 1854." "I now employ copper or other suitable " plates, engraved by my said process, for the formation of cylin- " ders to be employed in calico and similar printing, embossing, " and other purposes; or cylinders may be formed directly by the " electrotype process, by means of suitable tubular or other " arrangements of my engraved plates, to serve as moulds, and " the cylinders produced therefrom may be strengthened by the " insertion of metal rollers, cast metal, and similar methods.

"When it is desired to ornament manufactured articles with " engraving, according to my said improved process, the same can " be variously applied to flat, curved, and other surfaces, and " when required the engraved surfaces may be covered with gold, " silver, or other metals or materials, or may be inlaid with metals " or other materials."

[Printed, 3*d.*]

A.D. 1855, August 13.—N° 1836.

BLACKBURN, Robert, and DUNCAN, William Lundi.—" Improvements in bleaching." This invention consists in " causing cloths or yarns to be moved in an extended state [and in " a continuous manner] in the liquors employed in bleaching, in " such manner that, the several vessels required being contiguous " to each other, the cloths or yarns enter the liquor in the first, " and circulate to and fro several times therein; the cloths or " yarns then pass into the liquors in the next vessel, and circulate " several times to and fro therein; the cloths or yarns then pass " into the next vessel and circulate to and fro therein, and so on, " in the succession of vessels used." "The frames or rollers [over " and under which the cloth passes though the baths] may be " moved to and fro within the baths to cause the cloths or yarns " to be constantly shaken or changed in their position in the baths." " In addition to the onward movement communicated to the cloths " or yarns pressing rollers are used to express the fluid from the " cloths or yarns as they come out of some of the baths." "One " two, or more layers of fabric may be thus conducted" through the apparatus.

[Printed, 4*d.*]

A.D. 1855, August 23.—N° 1905.

JONES, Wright.—" Improvements in machinery or apparatus " for printing woven fabrics and paper hangings." These improvements relate, " first, to the rollers used for conveying color " to cylinders in surface printing machines for woven fabrics and " paper hangings, that is to say, to such cylinders upon which a " projecting pattern is formed, and consists in making the said " rollers [the furnishing rollers] of air-tight flexible materials, and " filling them with compressed air or other gaseous matter, or " with water or other liquid, by which means an elasticity is obtained, enabling me to dispense with the endless cloth or 'sieve' " usually employed." If water or other liquid be employed, instead of air, to fill the elastic furnishing roller, it is desirable to support the lower part of the furnishing roller by means of small rollers. " Secondly, to the 'doctor' or apparatus for removing " superfluous color from [furnishing] rollers of printing machines, " and consists in forming the edge thereof with projecting parts, " and these I construct upon bars or blades, or upon rollers." The improved doctor may consist " of a roller upon which spiral " grooves are formed, after the manner of a screw, thus affording a " number of projecting parts ; " " or instead of the grooves being " spiral, they may be formed along the length of the roller ;" or the doctor may be a " thin plate of metal, formed with teeth, after " the manner of a grainer's comb."

[Printed, 6*d*.]

A.D. 1855, August 24.—N° 1918.

DE LA RUE, THOMAS.—" An improvement in printing inks." " The object of this invention is to obtain inks which will have " better printing and drying properties, and the improvement " consists of employing borate of manganese in the manufacture " of printing inks." I add during the grinding process about one " part by weight of dry borate of manganese, in the state of fine powder, to one hundred parts by weight of printing ink materials ; " the proportion, however, may be varied ; and I cause the whole " to be thoroughly and intimately combined by grinding. Before " employing the ink, it is desirable to allow it to stand for about " a month, in order that the manganesic salt may operate upon " the oily vehicle of the ink. In place of combining or mixing " the borate of manganese with the printing inks, I sometimes " mix it by stirring it in with the varnish or vehicle when heated " to a temperature of about 600° of Fahrenheit, in the proportion " of about one part by weight to fifty or sixty parts by weight of

" the oily varnish or vehicle, stirring well during three or four " hours. The borate of manganese I employ is obtained by pre- " cipitation from a cold solution of a soluble salt of manganese " with a cold solution of borax, as is well understood, the pre- " cipitate being well washed, dried, and powdered before being " used."

[Printed, 3*d*.]

A.D. 1855, August 31.—N° 1969.

HOPE, John, and HOPE, Thomas.—"An improved machine " for engraving the surface of a calico printer's roller preparatory " to its being etched." The improved machine "for engraving " the varnished surface of a roller is in many respects similar to " other engraving or pantographic machines in use; it differs in " several essential particulars therefrom, and especially in the " general arrangement of its operative members or parts. By " means of it any number of similar figures may be engraved on " a cylinder by the use of a single pattern or corresponding figure, " the number of such engravings depending upon the number of " gravers employed." The Patentees claim as novel "the com- " bination and arrangement of the two sets of measuring markers, " the hold-back, rods, and roller, with the plane surface table, the " same being not only to enable the design to be transferred, it " being brought forward in regular sections, but to be maintained " flatly upon the table, as described."

"We also claim the two measuring indices, in combination with " the large pulley, and the shaft of the driving roller of the " cylinder to be engraved."

"We also claim the means of holding and moving the cylinder " so that it shall not only be rotated by pressure against its ex- " ternal surface, but may be either removed from or applied to its " supports; the same consisting in employing a driving roller and " a bearing roller at one end of the cylinder, in combination with " two sets of bearing rollers made to extend into a groove around " the cylinder, and to support such cylinder both laterally and " longitudinally, as described.

"We also claim the arrangement of the pattern table, the tracer, " and its carriage, the several other carriages, the mechanism for " operating each, the wheel M, its shaft, and the supports of the

" roller to be engraved; the whole constituting an important im-
" provement in engraving machinery, and securing to it important
" advantages in operation as well as construction."

The drawings and specification may be referred to for details.

[Printed, 9d.]

A.D. 1855, September 5.—Nº 2011.

GLASSFORD, JOHN HAMILTON.—" Improvements in printing " textile fabrics and other surfaces." This invention consists in the " mode or modes of producing undersunk or projecting print- " ing surfaces upon cylinders, blocks, plates, or other implements " by means or with the aid of lithographic or zincographic im- " pressions and etching or acid, for the purpose of printing upon " textile fabrics and other materials." " When a single or com- " posite transfer impression has been retransferred to the intended " stone or zinc surface and bro^t^ up (in the usual manner), the " whole surface is to be dusted over with powdered resin, or with " resinous or other matter, which will adhere to or unite with the " ink figures and resis the action of acids. The superfluous " matter thus applied is then brushed off, leaving the white or " unprinted parts of the surface clear, and with a protective coat- " ing upon the printed and inked portions only." Dilute nitric acid is then applied which " attacks the undefended portions of " the stone or plate, biting or dissolving and carrying away the " material at those parts of the surface, and it is to be continued " upon the stone or plate only so long as may be necessary to dis- " solve so much of the uncovered portions of the surface as will " leave the inked or pattern portions in extremely slight relief." " The acid is then washed off, and the whole surface is rubbed over " with soap or other greasy or soapy matter," and then by means " of a 'water of Ayr' stone the ink and grease from the relief " portions is entirely removed; " after which the surface of the " stone or plate is washed with a solution of gelatine, gum arabic, " or any similar substance in water, and inked in with lithographic " ink in the usual manner, so as to cause the ink to cover the " whole of the ground previously acted upon by the acid, and so " that an ink impression from the stone or plate would give a " negative pattern, that is, an impression having a dark ground " with a white device thereon." "The object of the etching process

" which I have just described is to enable me to get the ground on " the surface of the printing cylinder, slab, or plate covered with " the printing ink in the manner I have mentioned." Transfers may be made in ink from a roller, &c., so etched to other rollers, and these, when "brought up," dusted with powdered resin, and treated with acid, and otherwise as above, will give the design or pattern portion of the effect desired, etched down to the proper depth for printing by the usual printing machine. The "ground" may also be etched sufficiently deep to allow of its carrying color and being printed by the usual printing machine.

"Or the pattern or device may be drawn on the plate or stone " with china or india ink, or other aqueous colour, or ink and gum; " after which the stone or plate so drawn upon is to be oiled or " greased, or treated with copal or other varnish; the surface of " the stone or plate is then to be washed with water, when the " portions of it covered by the figures in china ink or other aqueous colors will be left clear, and, consequently, when the stone " or plate is inked up, those portions remain uncovered, shewing " the pattern parts white or uncovered upon a dark or inked " ground." Transfer impressions may be taken and transferred to the cylinder, &c., which is to be treated as above described.

In preparing blocks, &c., having projecting figures, those parts only are protected by means of ink and resin, and the other parts are acted on by the etching acid.

[Printed 5*d.*]

A.D. 1855, September 8.—N° 2041.

ROBERTSON, Andrew. — (Provisional Protection only.) "Improvements in the treatment, cleansing, and finishing of " textile fabrics," "more especially sewed muslins or embroidered goods." "Instead of depositing a mass of the " pieces or ornamental goods in the pot, boiler, or treating reservoir, the goods are formed into a species of endless chain, " by putting them in layers in a long open net or permeable " bag." This chain of goods is passed between a pair of nipping " rollers set up in connection with the pot," "so as to continually " draw the chain of goods through the chemical or cleansing ingredient," and return it to the pot. This invention relates, secondly, " to the beating of sewed muslins or other embroidered goods."

" The muslins, in proper sized bundles, are clamped up in a " simple holding or binding apparatus, and a set of such filled " clamps are disposed round the periphery of a revolving drum, " carried on a horizontal shaft, and rotating in an enclosing case " or outer chamber. This outer chamber contains in its lower " part the chemical ingredients or cleansing fluid necessary for " the process ; it also contains a flat beating surface at the bottom, " elevated slightly above the level of the fluid. The clamps of " goods being set round the drum at regular distances, as under, " the drum is set in rapid motion, and as each bundle of goods " comes round it dips well into the fluid, and then passes over to " the beating surface or table."

[Printed, 3*d*.]

A.D. 1855, September 12.—N° 2060.

HIGGIN, JAMES.—" Improvements in treating madder, so as to " obtain a coloring substance therefrom." The Patentee claims, " first, the use of ammonia in a gaseous state, either alone or " mixed with steam, for producing a beneficial change in the " dyeing properties of madder, or plants of same family, or any " preparations therefrom, with the exception of garancine and " garanceux." " Second, the condensation of ammonia after " acting on madder, or preparation of madder, or any plants " of same family, by any of the means described."

" I take madder (especially madder not sufficiently " aged"), " or any plant of same family, previously reduced to a powder, for " the sake of convenience, and mix it with water, in proportion of " one pound of madder to every gallon of water, and allow a " fermentation to take place, either without addition or with the " aid of any suitable ferment." After the fermenting action has continued at least two hours, assisted, when required, by a temperature of 120° Fahrenheit, " I strain off the liquor, and press as " much moisture out of the madder as I can, and then expose it " to the action of ammoniacal gas, or mixture of ammonia and " steam, for as long a time as may be judged necessary for the " particular sample under operation." The Patentee, in preference, places the substance to be acted on in a wooden cylinder with a closed top, and on a false bottom, under which the ammonia or ammonia and steam are caused to enter and pass up through the substance. "It is better towards the end (in an "hour, more less) to cease the passage of ammonia, and pass "steam alone until no more ammonia remains in the madder, "when it may be removed from the cylinder and cooled. It may "either be used in this state, or it may be washed with cold water "and dried; or it may be mixed with water, and a small quantity "(a slight excess) of an acid added, such as sulphuric, muriatic, "acetic, or any acid capable of combining with the earthy or "alkaline bases existing in the madder, which are left in a great "measure combined with the colouring matter." After steeping at the ordinary, or at a slightly elevated, temperature, until the object proposed seems fully completed, the mixture may be "cooled "and filtered, and washed with cold water until the washings "come away neutral, when the madder preparation may be "removed, and used in this state or pressed and dried for use;" or the madder may be treated, after the fermentation, with dilute acid in slight excess, at a temperature of about 120° F. until the compounds of coloring matter with bases are decomposed, and then, after washing thoroughly and pressing, may be submitted to the action of the ammonia or ammoniacal steam, as described.

In order to condense the ammonia "I connect the pipe passing "through the cover of the cylinder with a close vessel of any con- "venient shape," into which is caused to be passed at the same time through another pipe "muriatic acid or acetic acid," which will combine with the ammonia; or the ammonia may be caused to pass into an acid solution; "or, in case of steam and ammonia being used, "I pass the mixture on issuing from the cylinder into a worm or "suitable refrigerator surrounded by cold water, when liquid "ammonia will be recovered."

[Printed, 4*d*.]

A.D. 1855, September 14.—N° 2072.

HARTMANN, Jules Albert.—"Improvements in the pre- "paration and combination of colours for printing stuffs and "textile fabrics." "This invention relates to the production of "various steam colors from precipitated deoxidized indigo, and "also from extracts of madder, and the prussiates of potash or "other prussiates. The precipitated deoxidized indigo may be "prepared by any of the known processes for that purpose;" but the Patentee gives the preference to deoxidizing the indigo by means of " quick lime " and " sulphate of iron," or by " caustic " soda " and " salt of tin." The deoxidized indigo from the first solution being precipitated by means of salt of tin and muriatic acid, and from the second by means of muriatic acid and a small quantity of molasses. In both cases the mixture is allowed to settle, and is then filtered to collect the precipitate.

The Patentee claims, " first, the production of steam indigo " blue color, for printing stuffs and textile fabrics without the use " of magnesia, by the combination of precipitated deoxidized " indigo with silicate of soda or other alkaline salt, and gum " water or other ordinary thickening material, and fixing the " same by steaming."

" Secondly, the production of a steam indigo blue color by the " combination of precipitated deoxidized indigo (alone), with gum " water or other ordinary thickening material, and fixing the " same by steaming."

" Thirdly, the production of a steam green colour by the com- " bination of precipitated deoxidized indigo with extract of " persian berries, or quercitron, or other yellow colouring ma- " terial, and gum water or other thickener, with or without the " addition of silicate of soda or other alkaline salt, and fixing the " same by steam."

" Fourthly, the production of steam violets and puce colours, " by the combination of precipitated deoxidized indigo with the " colouring matter of cochineal, or of campeachy, or other red " woods, and gum water and other thickener, with or without the " addition of silicate of soda or other alkaline salt, and fixing the " same by steam."

" Fifthly, the production of steam puce and brown colours, by " the combination of precipitated indigo with the colouring " matter of madder and ammonia," thickened with gum, and steamed.

" Sixthly, the production of steam puce and brown colours, by " the combination of the colouring matter of madder with the " ferro-cyanides and ferrid-cyanides, such as the yellow and red " prussiates of potash," thickened with gum and steamed.

" Seventhly, the production of greys and black, and various " shades of colours, by the combination of the aforesaid blue, " green, violet, puce, and brown colours, or some of them, and " fixing the same by steam."

Where the coloring matter of madder or the prussiates are employed, it is necessary to prepare the cloth previously with alumina; in all the other cases it is preferable to do so.

[Printed, *4d.*]

A.D. 1855, September 15.—N° 2084.

SCULLY, VINCENT, and HEYWOOD, BENNETT JOHNS.—(Provisional Protection only.) "An improvement in the manu-" facture of certain articles which are subject to the corroding " action of the air and moisture." The Patentees propose for that purpose to introduce the use of "aluminium" into the manufacture of "wind and stringed musical instruments," "of " pens," "penholders," "inkstands," "types," "medals, coins, " plated goods, and articles of vertu, such articles being either " stamped in dies, or cast and chased, after the manner of the " silversmith in producing statuettes, or manufactured after the " manner of *repoussé* work, or coated by the electro deposition " process."

[Printed, *3d.*]

A.D. 1855, October 1.—N° 2190.

HOPE, GEORGE CURLING.—"An improved method of pro-" ducing figures, patterns, or designs upon textile fabrics for the " purposes of needlework." "Hitherto a description of work in-" tended to be ornamented or finished by needlework, and known " in the trade by the term of 'appliqué' has been produced by " cutting out figures, patterns, or devices from a textile fabric, and " applying them on to grounds of similar material. Now, my in-" vention consists in producing effects resembling 'appliqué' " work, by printing on to textile fabrics patterns, figures, or " devices, either by means of what is known as 'block-printing,' or " by means of printing (by surface printing from stone, copper, or " otherwise), and embossing, the work thus produced being in-" tended to be subsequently finished or ornamented at pleasure " by needlework. The pattern, figure, or device may be of a dif-" ferent shade or color, or of different shades or colors from that " of the ground on which it is printed." "The pattern may be " produced either by printing it upon the ground, or the ground

" itself may be made to form the pattern, another color or " colors being employed to fill up the parts of the fabric surrounding the pattern."

[Printed, 3*d*.]

A.D. 1855, October 6.—N° 2235.

HOYLE, Benjamin.—(Provisional Protection only.). "Certain improvements in the process of dyeing." "The yarn is " first subjected to a mordant of spirits and ash, saturated " to a specific gravity of twelve of Twaddle's hydrometer, in " which it has seven 'turns' and it is 'wrung out.' It is next " placed in a solution of three 'burns' of water to one gill of " sulphuric acid, has three 'turns,' and 'wrung out;' then " placed in three 'burns' of boiling logwood liquor, has five " 'turns,' 'and wrung out;' next put into three 'burns' of " water with four 'dish' of shumac in solution, has five 'turns,' " and 'wrung out,' and placed in a solution of two 'burns' of " boiling water, with one 'burn' and six 'dish' of logwood and " two 'dish' of redwood, five 'turns,' and 'wrung out.' The " yarn is then 'thrown' up, with a preparation of four pints of " alum to one gill of copperas, five 'turns,' and 'wrung' out; " then place in three 'burns' of water to three 'dish' of shumac, " three 'turns,' and 'wrung out.' Lastly, it is removed to a bath " of three 'burns' of boiling water, with eight ounces of soap " and three of ash, five 'turns,' and 'wrung out.' A gill of " spirits is then added, and the yarn has five more 'turns' and " 'wrung out,' washed in two clean waters preparatory to stoving, " when the yarn will be found dyed in a fast purple colour."

[Printed, 3*d*.]

A.D. 1855, October 9.—N° 2253.

MURDOCH, James.—(A communication.)—"Improvements " in extracting colouring matter from lichens containing such " colouring matter." The object of this invention "is to render " the method more economical ('a process invented by M. " 'Robiquet, for extracting the colouring matter from lichens " 'by means of alcohol'), by collecting the alchohol driven " off in vapour, and employing it over and over again." " The lichen is placed in the distilling apparatus (see drawing),

" and the colouring matter is extracted from it by successive " decoctions in alcohol; the alcoholic vapours which are disengaged passing off by the pipe into the condenser, in which " they are condensed, and from which they are drawn off by the " cock, to operate upon a further portion of lichen." The exhausted lichen may be washed with a small quantity of water, from which the alchohol is recovered by distillation. The extract remaining in the still (which may be any suitable distilling apparatus), is drawn off and redissolved in water, and left to cool, and then thrown upon a filter, "which retains the resin dissolved by " the alchohol, but which resin is deposited by the liquor in " cooling." The liquor may afterwards be treated with ammonia, or it may be evaporated until crystals of "orcine" are deposited.

[Printed, 8*d*.]

A.D. 1855, October 9.—N° 2254.

MURDOCH, JAMES.—(A communication.)—" Improvements in " extracting colouring matter from lichens containing such colouring matter." "This invention consists, firstly, in extracting " colouring matter from lichens by means of liquid ammonia " alone; and, secondly, in collecting the ammoniacal vapours " disengaged, in order to use them over again.

"The lichens are placed in the distilling vessel (see drawing, " but any suitable distilling apparatus may be employed), into " which liquid ammonia is introduced by the funnel, and is made " to boil. At the end of about two hours the whole of the colouring matter will be extracted. The cock is then opened, and an " ammoniacal liquor flows off, which, placed in suitable vessels, " and shaken repeatedly during the day, will, in the course of " about a fortnight, assume a beautiful tint of orchil. The ammoniacal vapours, disengaged during the boiling, pass by the " pipe into the vessel containing distilled water, and form liquid " ammonia, which is drawn off at the cock. The vessel must be " kept constantly cool, in order that the ammoniacal gas or " vapour may be more easily condensed. As for the lichen, it is " withdrawn from the still, washed, and pressed in a hydraulic " press, in order to extract the ammoniacal liquor remaining " in it."

[Printed, 7*d*.]

A.D. 1855, October 13.—N° 2290.

THIBIERGE, Germain Adolphe.—" Improvements in manu-" facturing chlorine, part of which are applicable for obtaining " certain accessory products."

This invention consists in the production of hydrogen, chlorine, and peroxide of iron by the following process:—Muriatic acid gas, artificially dried, is caused to pass over iron at a high temperature, contained in a suitable vessel capable of resisting the simultaneous action of the gas and a red heat. The resulting products are " protochloride of iron and hydrogen gas." The hydrogen may be passed on to the gasometer. The protochloride of iron is then exposed in the same vessel to the action of a current of dried atmospheric air, the effect of which is to decompose the chloride of iron, and to produce peroxide of iron and chlorine. The chlorine so obtained may be employed for bleaching and other purposes.

[Printed, *4d.*]

A.D. 1855, October 13.—N° 2299.

STENHOUSE, John.—" Improvements in the preparation of " decolourising materials." " This invention consists in treating " vegetable charcoal so as to render it capable of being employed " as a decolourizing agent. This I effect by introducing certain " substances, such as oxide of iron and alumina, or phosphate of " lime, in a state of solution, into the mass or substance of vege-" table charcoal, and then rendering these substances insoluble " within the pores of the charcoal. For this purpose I employ the " soluble salts or solutions of these and similar substances. The " charcoal is heated with the solution of these substances till the " air contained in its pores is expelled, and the charcoal saturated " with the solution. The charcoal is then dried and heated to red-" ness in close vessels, till the water and acid contained in it are " expelled. Vegetable charcoal so treated may be used for the " purpose of decolorizing syrups and other coloured solutions."

[Printed, *4d.*]

A.D. 1855, October 24.—N° 2380.

JOHNSON, John Henry.—(A communication.)—(Provisional Protection only.) " Improvements in the production of dies

" and matrices, partly applicable to the production of printing surfaces." "For the production of a die or matrix for stamping purposes, a thin plate, having the desired device formed upon it either by the electrotype process or by stamping, is placed at the bottom of a mould, and an alloy of metal is then poured in over it, so as to form one solid die or matrix. The nature of the alloy will depend on the metal of which the plate forming the subsequent face of the die is composed; if a copper plate is used, the alloy employed will be brass, but if the plate be of wrought iron, the metal subsequently poured on to it may be cast iron simply, in place of an alloy; but in all cases the plate becomes perfectly soldered or united to the melted metal poured over it, which gives the die the requisite strength necessary for whatever purpose it may be employed. For the production of copper plate printing surfaces the design is obtained from an engraved plate by the electrotype process, and the plate so produced is strengthened as herein-before described, by pouring a suitable alloy over the back of it.

"According to another process, the plate may be obtained at once by the electrotype process from a glass or other transparent surface, which has been coated with a varnish capable of resisting the action of acids, and in which varnish the design to be reproduced is traced with a fine point, so as to expose the glass. Inlaid work may also be produced by depositing the copper over pearls, mother of pearl, stones, or other similar substances; a plate so formed serving either for the electrotype reproduction of similar plates, or as an ornamental article."

[Printed, 3*d*.]

A.D. 1855, November 2.—N° 2448.

COTTRILL, John.—"Improvements in machinery or apparatus for washing, scouring, dyeing, sizing, and cleaning woven fabrics and yarns." "I pass and repass the material to be operated upon in a continuous line through a cistern, either in band or open pieces, with two or more compartments, and over rollers placed at convenient distances, immersed in water or other suitable liquid flowing through the cistern. I also use any required number of agitators placed at intermediate dis-

" tances between the rollers, and acting on the cloth or material " by revolving at any required speed, the material being worked " forward by the revolving motion of a pair of squeezer rollers. " The first compartment of the cistern in which the cloth enters " is made lower than that which follows it for the purpose of " preventing the greater part of the dirt which is liberated at the " first agitation or washing from mixing with the water or other " liquid in the second compartment." After one passage the fabric may be returned from the squeezers, and caused to pass again through the washing apparatus " guides " being placed " so as to prevent one part of the cloth or material in its passage " from touching or interfering with another." " The motion of " the agitators (of a triangular or other shape) is opposed to or " against the direction of the cloth or material, thereby giving an " efficient rubbing effect."

[Printed, 8*d.*]

A.D. 1855, November 3.—N° 2456.

COTTRILL, James Smith.—" Improvements in machinery or " apparatus for washing, scouring, dyeing, sizing, and cleaning " woven fabrics and yarns." " I pass the material to be operated " upon through grated agitators, either in band or open pieces, " oscillating any required speed or number of strokes, and placed " at any suitable distances in a cistern with two or more com- " partments, with a continuous stream of water flowing through, " partially or wholly immersing the material, which is worked " forward by the revolving motion of a pair of squeezer rollers." The cistern may be made in two compartments, the first or entering compartment being placed lower than the other. " Each " agitator consists of two levers or cranks fastened to their re- " spective pivots or shafts, the cranks being kept apart by bars " and standards forming grids or grates, so placed that the " material is passed through and guided without straining during " the agitation of the yarn or fabric, a principal feature consisting " in placing one of the grids or grates at the centre of the " oscillation of each agitator." ' The yarn or fabric may be " returned to the cistern, and repassed between the agitators as " often as may be found necessary."

[Printed, 9*d.*]

A.D. 1855, November 7.—N° 2505.

JOHNSON, William.—(A communication.)—"Improve-"ments in the manufacture and application of prussiates "and other colouring matters." These improvements relate, "in the first place, to the application in the manufacture of "prussian blue, prussiate of soda, prussiate of potash, and "other colouring matters, of the refuse matter of the gas "purifier, and of soot and other refuse matters from chemical "works, foundries, glass works, and kilns, where a certain "quality of fuel is consumed. In using these substances "in the said manufacture they are to be treated with alkalies, "sulphate of iron, or other persalts of iron. Insoluble cyanides "or ferrocyanides may be treated with a solution of caustic "alkali, such, for example, as caustic soda, and if this alkali is "used prussiate of soda will be produced. The refuse animal "charcoal of sugar refiners may be similarly treated with caustic "alkali so as to produce useful colouring matters. The said "invention also comprehends the employment or use of soluble "silicates in the manufacture of prussiates; and also the em-"ployment and use of insoluble soaps, such as the stearates "or resinates of lime or magnesia, as bases for the blue "coloring matter. The said invention further relates to the "application and use, in the manufacture of blue balls for "washing purposes, of apparatus similar to that used for making "pills or lozenges."

[Printed, 3*d.*]

A.D. 1855, November 14.—N° 2569.

JAQUES, Frank.—(Provisional Protection only.) "The use "and method of preparation of a new material to be used in the "process of dyeing silk." "The new material or ingredient, "to the use and preparation of which my invention has reference, "is the 'double chloride of zinc and barium,' which I propose "to employ either in conjunction with other dye stuffs or without "them, in order to obtain extra weight, brilliancy, and fixity "of color."

[Printed, 3*d.*]

A.D. 1855, November 19.—N° 2605.

McNICOL, JOHN.—(Provisional Protection only.) " Improve-" ments in machine or cylinder printing." "I propose to " make the doctor of a much stronger description than has " hitherto been adapted, and fix very strong brass bushes at each " end, so that when it comes in contact with the copper rollers and " colors, I shall be enabled to print blotch grounds as well as " white grounds, the former having been generally done by " hand, or what is termed 'block-printing.' I make the doctor " the whole width of the copper roller, by which I am enabled to " print a solid six, eight, or ten inches, or the whole of the piece, " if desired."

[Printed, 8*d*.]

A.D. 1855, November 20.—N° 2621.

TOLSON, GEORGE, senior, TOLSON, ROBERT HENRY, TOLSON, JOSEPH, senior, and IRVING, THOMAS.—(A communication.)— " Improvements in producing metallic lustre to " yarn and fabrics." "This invention consists of giving a " metallic lustre to yarn and fabrics, by boiling them in " solutions of sulphate or oxide of copper or a salt or oxide " of lead, zinc, or silver, before dyeing such yarns or fabrics, " and then to dye them, the metallic lustre being subse-" quently obtained by the use of hyposulphite of soda, potash, " or ammonia." " When dyeing blacks, browns, and maroons," " we boil the fabric (say one piece) or yarns (about 4 lbs.) for " about half an hour in a bath composed of ½ lb. sulphate of " copper, 4 oz. of bitartrate of potash, and 40 gallons of water. We " then wash the fabric or yarns in cold water, and dye in the usual " manner, preferring, however, when dyeing blacks, to use ebony " with logwood, say, in the proportions of 3 lbs. of logwood to 1 lb. " of ebony. The fabric, &c. having been dyed, washed, and dried, " we immerse the same for about 10 to 15 minutes in a bath " composed of about 40 gallons of water and 4 ozs. of sulphate of " copper dissolved in about a pint of ammonia, using the bath at " a temperature of from 150° to 190° Fahrenheit. The fabrics or " or yarns having been washed, are then immersed in a bath com-" posed of about one pint of hyposulphite of soda, potash, or " ammonia (of a strength of 40° of Twaddle) for about 10 to 15

" minutes. The fabrics, &c. are then washed and finished in the " ordinary manner." " When dyeing drabs, lavenders, and such " like colors, we use a salt or oxide of lead, zinc, or silver."

[Printed, 3*d.*]

A.D. 1855, November 30.—N° 2703.

DUSAUTOY, Auguste.—" Machinery for cutting cloth and " other substances." The cutting instrument may consist of " a " thin flexible endless steel blade " passed after the manner of a belt round two pulleys driven at a high speed. The steel blade may be steadied by means of a metallic plate which is caused to press against it. The article to be cut being placed on a table, is brought against the edge of the steel ribbon or blade so revolving, and cut to the desired shape. Or a cutting blade formed of thin sheet may be actuated rapidly up and down by means of an excentric, the ends of the blades being kept at a proper tension by means of springs; or the desired tension may be obtained by connecting each end of the blade to the piston rod of a small air pump; or by means of three sectors, one of which being actuated by an excentric, will cause the other two to give to the blade a rapid up and down movement. The edge of the blade may be serrated.

[Printed, 1*s.* 2*d.*]

A.D. 1855, December 11.—N° 2804.

RUDING, Rogers.—" An improvement in printing silks and " other woven fabrics with gold and other metal leaf or powder." " This invention consists of employing shell lac in a refined and " powdered state, together with a heated printing surface, for " printing silks and other woven fabrics with gold and other " metal leaf or powder. For this purpose I take the dried powder " of shell lac, obtained by precipitating from a solution (in spirit). " This powder is dusted evenly over the surface which is to be " printed with the gold or other metal leaf, or it might be metal " powder, which is to be spread over the shel lac, and then a heated " printing surface is to be applied, by which the metal will be " caused to adhere to those parts where the printing impression is " made, by reason of the melting of the shell lac, whilst the " unmelted shell lac and the metal which is over other parts of

" the fabric may be brushed off." " Or a thin and clear solution " of the gum may be spread all over the surface of the silk or " other woven fabric, which will only act slightly to stiffen the " fabric," and be employed as a substitute for the powdered shell lac.

[Printed, 3*d.*]

A.D. 1855, December 15.—N° 2837.

WALLACE, Agnes, and WALLACE, John.—" Improvements " in bleaching, washing, or cleansing textile fabrics and materials." These improvements consist first, " in aiding, hastening, or im- " proving the action of dash wheels or other chambers or vessels " used in bleaching, washing, or cleansing textile fabrics and " materials, by introducing heated air into such wheels, chambers, " or vessels." Secondly, " in aiding, hastening, or improving " the action of dash wheels or other chambers or vessels used in " bleaching, washing, or cleansing textile fabrics and materials, " by introducing heated air or steam into spaces surrounding or " dividing the interior of the wheel, but not in communication " therewith."

[Printed, 7*d.*]

A.D. 1855, December 20.—N° 2879.

FLEMING, James, junior.—" Improvements in bleaching, " washing, cleansing, and preparing textile fabrics and materials." These improvements consist, first, " in combining apparatus [ar- " ranging the parts in such relative positions as regards each " other as will insure a rapid transfer of the goods from one to " the other], such as boilers, rub-boards, and dash-wheels used in " bleaching, washing, cleansing, or preparing textile fabrics and " materials." Second, " in the application and use " " of reels or " rollers and guide eyes for conveying and guiding the goods " under treatment from one portion of the apparatus to another." Third, " in arranging and constructing rub-boards, and their " drawing and guide rollers, and of disposing the boilers used in " connection with such rub-boards, so that the goods under treat- " ment can be passed in either direction through the rub-boards, " and to and from the boilers." Fourth, " in the general ar- " rangement of pipes or ducts " required; and " in the revolving

" joint, for effecting a communication between the piping and the " internal compartments of the dash wheel." "Each pipe com- " municates with an annular box encircling the spindle of the " dash wheel, and fitting upon a ring upon the dash wheel face. " This ring is grooved, and apertures are formed through from " the groove into each compartment of the dash wheel. The ring " works in the box, which does not turn, but is pressed against " the ring, so as to keep the joint as tight as possible, by springs " carried by brackets upon the pedestal." Fifth, "in sewing the " textile fabrics and materials," "particularly such as are of short " lengths," "so as to make chains of considerable length to " facilitate their passage through the apparatus."

[Printed, 10*d.*]

A.D. 1855, December 22.—N° 2904.

DRESSER, Christopher.—" Improvements in the mode of " effecting what is called 'nature printing.'" The Patentee claims " the printing from leaves or other natural objects upon " stone or metal, with a view to multiply the impressions " when the stone or metal has been treated with agents " which render them capable of being used to print from " by the usual processes." " Having prepared the leaf, by " giving it a thin and even coat of lithographic ink (which " requires careful management,) I place it with the prepared side " downwards on a lithographic stone which has been previously " warmed, so as not to 'set' the ink upon the leaf. I then " lay over the leaf a sheet of paper, and rub it with the finger or " with a soft pad, thus pressing the leaf in contact with the stone. " Now, upon removing the paper and leaf carefully, I have a " delicate and perfect impression of the latter upon the stone, even " the hairs of a leaf (when they exist) being truly represented. I " now subject the stone to the usual lithographic process, treating " it just as it were a drawing on stone, and then multiply impres- " sions to an indefinite extent by the ordinary lithographic printing process."

" Second, the metallic plate process; printing from a raised " metal surface, like a wood cut or like type." The surface of the leaf is supplied, with equal care, in this case with an ink composed of about equal parts of "etching ground," "common

" tallow," or "balsam of Judea," and "sweet oil" well mixed, and printed on the "metallic plate, zinc, for example," slightly warmed, as before. The ground is then etched down "with acids, " or by the agency of galvanism" in the usual manner. The plate is now ready for use.

"Third, the ordinary copper-plate or cylinder process; the en- " graving being concave." The surface of the leaf in this case is supplied with "oil paint" such as used by artists, and impressed upon the surface of the "copper or other metallic plate," which has been previously covered with a thin coating of "etching " ground just as if I were about to etch upon it;" "where the " oil paint has touched the 'etching ground,' the latter will be " dissolved, which I at once carefully wipe off with a soft rag, the " copper now appearing through where the ground is removed; I " now wash the plate with soap and water to remove all remaining " grease, and then subject it to the usual etching processes."

[Printed, 3*d*.]

1856.

A.D. 1856, January 9.—N° 67.

GATTY, Frederick Albert.—"Improvements in the manu- " facture of lake colours." This invention "consists in the " application of the salts of antimony (by preference the chloride " for the purpose of precipitating the colouring matters of dye " materials, such as sapan wood, logwood, cochineal, guercitron " bark, and some others of the same description, thereby pro- " ducing colours commonly called lakes, for the manufacture of " which other metallic salts have hitherto been used." In the manufacture of a "red lake" the Patentee proceeds as follows:— " To one gallon of chloride of antimony at 80 degrees of Twaddles' " hydrometer, I add twenty gallons of well aged sapan or lima " wood liquor, at 7 degrees of Twaddle's hydrometer; the whole " is then well stirred, and left to stand for a few hours, and then " is put on a filter. When the liquor is run off I add about 4 " gallons of water, in order to wash the preciptitate. This ope- " ration of washing I repeat a second time; when the water is " strained off, the lake is finished, and may either be dried or

" used in the wet state." By using more or less of the chloride of antimony the shade of the lake will vary from a "crimson" to more of a "scarlet." In manufacturing "purple or violet lakes" "logwood liquor" is substituted; and for "yellows" "quercitron bark liquor." "Lakes may be obtained in like manner " from all the dye materials which form coloured precipitates with " salts of antimony."

[Printed, 3*d.*]

A.D. 1856, January 10.—N° 80.

HERBERT, Jane Ann.—(A communication.)—"An improved " method for extracting the dirt, or the gum, or the coloring " matter, or the principle from various vegetable or animal " substances or materials." This invention consists "in the " method of extracting the dirt, or the gum, or the colouring " matter, or the principle from vegetable or animal substances or " materials, in a permanent vacuum in all the chambers of said " apparatus through the entire operation, and the liquid or gas " rotated by a force-pump continuously in said vacuum, without " any assistance of force from said vacuum during the said process, " and the apparatus or machine to operate or perform the said " method, substantially as described."

The apparatus may be made of any suitable material, and may consist of a vessel fitted with an air-tight cover, in which may be placed a strainer. The substance to be acted on is placed on the strainer or in the receiver underneath. In connection is an air-pump or pumps which draws out the air from the lower part of the receiver and forms a vacuum, and then pumps the liquor or gas introduced into the receiver through a pipe on to the surface of the substance from which the extract is to be made, thereby producing a circulation and filtration. The liquor may be heated to the proper degree by means of a furnace placed underneath the receiver, or otherwise. A small chamber may be attached to the receiver for the purpose of holding and introducing bleaching and disinfecting substances.

[Printed, 11*d.*]

A.D. 1856, January 19.—N° 150.

ARMOUR, John.—(Provisional Protection only.) "Improve- " ments in bleaching, washing, or cleansing textile fabrics and

" materials." These improvements consist in modifying and thereby improving the action of the dash-wheel. "The circum-" ferential portion of the wheel, case, or chamber is made " double, or with a jacket in the form of an annular casing. " The axle or shaft of the wheel is made tubular, for the purpose " of admitting steam, hot air, or hot water [or hot acids, alkalis, " &c.] through it to the enveloping casing [or into the internal " divisions or both], so that the wheel may thus be kept con-" stantly heated to a high temperature if necessary." "The " wheel may be made to revolve in a vessel of hot water, or over " a heating chamber of any convenient kind."

[Printed, 3*d.*]

A.D. 1856, January 25.—N° 201.

WOODWARD, George Gower. — (Provisional Protection only.) " Improvements in the manufacture of carpets." These improvements consist, first, in the application of the combination of " self" and parti-coloured " warps," (described in the Patentee's patent dated the 26th October, 1854,) "to the manufacture of " carpets known by the names of Kidderminster, Scotch, and " Dutch carpeting."

Second, " in working the 'self' and parti-coloured warps in the " same reed of the slay as in the manufacture of Brussels carpets, " and working above and below each other as the pattern may " require."

Thirdly, in "further improvements upon the methods of " dyeing parti-coloured warps described in the specification of " my Patent above referred to, and in the apparatus connected " therewith."

[Printed, 3*d.*]

A.D. 1856, January 26.—N° 212.

GARDNER, Edward Vincent.— " Improvements in heating, " drying, dessicating, and evaporating."

These improvements are " particularly applicable to heating and " drying air, drying linen, drying piece goods or paper, &c., and " for the purposes of evaporation and distillation generally." The apparatus consists of a casing made of metal, and of suitable dimensions. At the lower part of this chamber, and within it, is placed a furnace or fire-place, and the chamber itself is fitted up with shelves so arranged that the draft from the fire is caused to flow from one side of the chamber to the other several times before it escapes at the roof into the chimney. On these shelves may be placed any desired shape of vessel to contain the material to be heated. Iron vessels connected together by bent pipes (resembling the mode adopted for steam chests), for example, may be placed on the shelves, and air heated by being passed through them; or these iron chambers may be open at each end to the outside, where rollers may be placed, to carry through the fabric to be dried in a continuous manner, and from one chamber to another. Various other applications of this mode of heating are given in the Specification.

[Printed, 9*d.*]

A.D. 1856, February 1.—N° 273.

SCHISCHKAR, Edward. — "Improvements in dyeing and " colouring wools, hairs, silks, yarns, and textile fabrics made of the " same materials, either wholly or partially." These improvements relate to giving wools, &c. a "bright lustrous appearance," wools, " hairs, silks, yarns, and textile fabrics made of the same mate" rials, either wholly or partially, and in a raw or manufactured " state, when impregnated with the salts or oxides of copper, or " the salts or oxides of lead, can be acted on by reducing or " deoxidizing agents, such as the proto-salts and oxides of tin " and iron, arsenious acid, arsenites, tersulphuret of arsenic, sul" phites, hydrosulphites, sulph-arsenites, and sugars, so as to " impart them a bright lustrous appearance. The reducing or " deoxidizing agent which I prefer most is sugar, but other " reducing or deoxidizing agents well known to chemists will " effect my purpose. The reducible salts or oxides of metals " which I employ for the impregnation are those of copper and " lead, including the sulphates, acetates, nitrates, tartarates, and " chlorides, and the suboxides and protoxides of copper and the " sulphates, acetates, nitrates, and tartarates and the protoxide of " lead. The deoxidizing or reducing agents which I employ are " the proto-salts or oxides of tin, including the sulphates, nitrates, " acetates, and chlorides; the proto-salts or oxides of iron, " including the acetates, nitrates, and sulphates of protoxides and " protochlorides, arsenious acid, tersulphurets of arsenic, arse-

" nites of potash, soda, ammonia, and lime, sulpharsenites of " potash, soda, and ammonia; sulphites of potash, soda, ammonia, lime, and magnesia; hypoosulphites of potash, soda, and " ammonia and sugars."

In carrying out this invention the fabric is padded with a mixture in "certain equivalent proportions" "of one of the " reducible metallic salts and one of the reducing agents." The lustrous effect is brought out by submitting the fabrics so prepared to the action of high pressure steam. The practical application of this principle may be modified as described in the specification.

[Printed, 5*d*.]

A.D. 1856, February 5.—N° 312.

JENNINGS, Francis Montgomery.—"Improvements in " bleaching vegetable fibres." These improvements consist "in " bleaching vegetable fibres in the state of cloth, thread, yarn, " or as flax, hemp, jute, china grass, or cloths, known in the " trade as unions, being mixtures of linen and cotton, or such " like substances in any state of preparation, or entirely unmanufactured, or as pulp, by the use of a solution of hypochlorate of soda, commonly called chloride of soda, in combination or admixture with an excess of caustic carbonate, or " bicarbonate of soda," "or potash," or any admixture of them. The material during the process of bleaching with lime, alkali, and acids is repeatedly submitted to the action of a solution of the hypochlorite with excess of alkali.

[Printed, 4*d*.]

A.D. 1856, February 9.—N° 342.

SWAN, Charles, and SWAN, George Frederick.—(A communication.)—"An improved coloring matter for writing, staining, " or dyeing, which is also applicable to the production of a copying " fluid." This invention has "reference to the production of a " permanent black coloring matter applicable to the purposes of " writing, staining, or dyeing," and which will not corrode steel pens or other metallic pens, nor have its colour affected by them; and consists in "employing an extract of logwood or hæmatoxylon " campechianum (in a dry state or wet state, as may be required); " and in order to convert the color of the said extract to a suitable

" jet black color, and to render the same color permanent, and to " give the solution fluidity, indelibility, and other qualities which " are requisite to our above invention, we prefer to employ a " mixture of the following materials, namely, bichromate of " potash, perchloride of mercury, otherwise called corrosive sub- " limate, subcarbonate of potash, chlorate of potash, and spirit of " ammonia, which said materials may be employed in different " proportions, which should depend in a great measure on the " particular objects to which it is intended to apply the coloring " matter. And in place of the perchloride of mercury, may be " substituted vinegar, or other acid substances, which have " hitherto been employed or may be employed in ordinary inks; " but the employment of the other above named substances in " combination with each other, is the characteristic of our im- " proved colouring matter." The coloring fluid so obtained may be converted into a "copying ink" by the addition of "saccha- " rine" or "thickening ingredients."

[Printed, 3*d*.]

A.D. 1856, February 13.—Nº 362.

DAVID, PIERRE ISIDOR.—" Certain improvements in the method " of bleaching." "The bleaching is effected by means of chloro- " form in the state of gas." "First, place the cotton in a closed " wooden box, to which admit steam at a pressure of four atmo- " spheres, obtained from a boiler into which crystallized soda shall " have been admitted from time to time, after which remove it " and let it stand to cool. Secondly, mix the following materials " in an earthen vessel in about these proportions:—Three pounds " of ordinary bleaching powder, three pounds of slacked lime, a " quarter of a pound of spirit (alcohol), of great strength, and " nine pounds of water. Thirdly, after mixing, add hydrochloric " acid in about the proportion of one pound to the above-named " quantities, chloroform in a gaseous state will be evolved. " Fourthly, place the cotton, after steaming and cooling, in a " wooden box lined with lead, into which introduce the gas through " an india-rubber tube, till the cotton is sufficiently bleached; " then introduce hydrogen gas to expel the chloroform. This " having been done, again introduce chloroform gas obtained in " the following manner:—Place bleaching powder, slacked lime, " alcohol, and water, mixed in the above proportions, in a zinc

" retort or vessel, heat them to 50° or 60° Reaumur (145° and 167° " F.), and admit the gas disengaged thereby to the cotton. To " give the cotton a blueish color, after the second admission of " chloroform gas, admit into the lead-lined box a current of oxygen " gas, which may be obtained from water or manganese, and submitted, before entering the box, to the action of an electric " current, by means of an electric battery."

[Printed, 3*d.*]

A.D. 1856, February 16.—N° 400.

GRANT, Frederick Daniel.—(Provisional Protection only.) " A method of rendering printing inks and wax odoriferous."

"My invention consists in incorporating with inks employed in " lithographic and other printing, as also with wax employed for " the manufacture of artificial flowers and other like purposes, " one or more essential oils or scents, in order to impart an agreeable odour, and to overcome or neutralize the unpleasant smell " which is generally found to emanate from printing inks. In " the printing of a bunch of flowers, for instance, I intend to " employ separate inks, and to incorporate in each ink the essence " of the flower to be represented, so that each separate flower may " to a certain extent exhale an odour similar to that from a living " flower."

[Printed, 3*d.*]

A.D. 1856, February 18.—N° 407.

HODGKINSON, Henry.—" Improved machinery or apparatus " for bleaching cotton, linen, and other woven or textile fabrics." The improved apparatus consists " of a steam-tight casing made in " two parts, with a place at bottom to hold liquid. Inside this " casing there is a wheel [similar to a dash wheel], revolving upon " an axis, and containing the fabrics to be operated upon. There " is a tap and a perforated pipe at the bottom part of the casing, " by which steam is admitted thereinto for boiling the bleaching " liquid therein. The aforesaid wheel is formed with sides, and " has a series of buckets placed around its periphery, and openings " at the bottoms of each of such said buckets for the admission " and emission of the bleaching liquid as the wheel revolves. " There are four or more openings made in the side of the wheel

" for charging and discharging the goods to be operated upon.
" The top of the casing is furnished with a valve for regulating the
" discharge of the steam from the interior thereof."

[Printed, 6*d.*]

A.D. 1856, February 23.—N° 461.

GEDGE, John.—(A communication from Rostaing, C.)—(Provisional Protection only.) "Improvements in preparing and com" bining metallic substances for producing colors, and in the
" manufacture of the same." These improvements consist in submitting "blende" or "native sulphuret of zinc" to a proper heat in a reverberating furnace. "The oxide then remaining is
" coloured by other metallic oxides, such as oxide of iron, manga" nese, cobalt, nickel, chromium of copper, uranium." "To prepare
" colors based upon blende alone," the powder is placed in "a
" suitable vase, and moistened by about one-hundredth part of its
" weight of sulphurated azotic acid or hydrochloric nitric acid, in
" twice its weight of water, the whole being carefully mixed; or
" commercial sulphate of zinc may be advantageously substituted
" for the acids." "The mixtures are then placed in the reverbe" rating furnace (previously heated), and spread upon the bottom
" in a bed of about two inches in thickness."

[Printed, 3*d.*]

A.D. 1856, March 3.—N° 540.

WALLACE, James, junior.—"Improvements in bleaching, wash" ing, cleansing, and drying textile fabrics and materials."
" According to this invention, the centrifugal apparatus [techni" cally termed a hydro-extractor], which ordinarily consists of a
" cage or chamber of some permeable material, mounted upon a
" vertical spindle, is applied so as to be available for bleaching,
" cleansing, and drying various classes of goods. Steam or heated
" water is passed into the chamber through a tubular shaft, so as
" to mingle with the goods therein, and with the chemical and other
" ingredients employed in the process. The steam supplied to aid
" the operations is conveyed into the chamber, by preference
" through the tubular shaft, but it may be admitted from the out" side and directed against the rotating permeable wall of the

“ chamber. Or, further, it may be admitted over the top of the “ chamber wall by a pipe passing into the central opening for the “ introduction of the goods.” “As the ingredients and fluid matters “ are thrown off and through the sides of the chamber, they are “ returned again and again to the goods, until the desired effect is “ produced,” through suitable pipes. The spindle may be caused to rotate in a vertical position or inclined. A modified form of dash wheel may also be employed, “that is to say, a dash wheel “ chamber supported in bearings on one side only, and revolving “ upon a horizontal or inclined spindle. The wheel chamber in “ this case overhangs its bearings, so that the front side, where the “ attendant stands, is quite free and open to his operations, and “ the goods may be deposited in the rotating chamber whilst the “ motion goes on.”

[Printed, 7*d*.]

A.D. 1856, March 8.—N° 576.

COOKE, Henry.—“ Improved machinery or apparatus for dyeing “ and dressing yarns or threads.” This invention “consists in the “ application or adaptation to dressing machines (commonly em- “ ployed for dressing and sizeing yarns) of dyeing or colouring “ troughs, rollers, and drying apparatus, for the purpose of dyeing “ the yarns in the dressing machine, and simultaneously with the “ ordinary process of dressing yarns.” The dyeing vessel attached to the dressing machine may be a long-shaped vessel, divided into several compartments. The yarn is caused to pass into the dye liquor contained in the first compartment, round a roller near the bottom, and then to pass up and through between a pair of mangle rollers. Thence it is caused to pass over an elevated roller, whereby it is partly dried, and to descend into the liquor in the second compartment, and so on through as many vessels as may be required. “ When it has become thoroughly saturated with dye, it passes “ under the drying cylinder, and over a guide roller, into the size “ vessel, round a similar arrangement of rollers as are used in the “ dye vessel, thence through as many size vessels as are required “ to impart the proper degree of stiffening. After leaving the “ sizeing vessel, it proceeds through the ordinary arrangement of “ dressing machinery.”

[Printed, 9*d*.]

A.D. 1856, March 15.—Nº 622.

COATES, CHARLES.—"Improvements in apparatus for com-" municating motion to machinery used in bleaching, printing, " dying, and finishing fabrics." These improvements consist, first, " in communicating motion to machinery used in bleaching, " printing, dyeing, and finishing fabrics by means of circum-" ferential friction pulleys." The motion of the driving shaft is communicated by means of the frictional force of the surface of a plain pulley attached to it, to the surface of another plain pulley attached to the apparatus to be driven, such as the lower bowl of a washing machine, a printing machine, or the wince of a dye beek. The contact of the two friction pulleys may be made by means of levers or by levers and screws combined. Second, in "the mode of applying the driving shafts of machines used in " bleaching and dyeing, and the casing round them answering " the purpose of a rail for the guide pegs." The driving shaft may be placed "through or near the machine," and be protected by a casing "serving as the support of the pegs for guiding the " fabrics."

[Printed, 1*s*. 4*d*.]

A.D. 1856, March 19.—Nº 661.

PARSONS, CHARLES FREDERICK.—" Machinery to be em-" ployed in the bleaching and dyeing of cloths, yarns, and fabrics." This invention "consists in the employment of cylinders, with " certain appliances thereto, made to rotate in troughs (also with " certain appliances thereto) containing the liquids for washing, " bleaching, and cleansing, and provided with brushes to cleanse, " wash, and rub the surface of the cloth, yarn, or fabric; of rollers " for expressing the liquid of drying cylinders; and, if necessary, " of cylinders, rollers, or frames made to revolve in dyeing liquors " when it is required to dye the fabrics."

This apparatus may consist of several cisterns placed end to end having circular lids or covers, for the purpose of holding the water or liquors required, in each of which is placed a cylinder which is caused to revolve by means of gearing. The fabric to be operated upon is wound on the cylinder in the first cistern and there subjected to the action of the desired liquid. It is then passed on to the second, third, &c., cisterns and wound on and treated in like manner. In each cistern are placed revolving and stationary brushes which are caused to act against the surface of the fabric and thereby contribute to the cleansing or dyeing of it. At the end of the series of cisterns is placed a pair of squeezers, and steam cylinders to dry the fabric, which may thus be scoured, bleached, dyed, squeezed, and dried by one continuous operation.

[Printed, 1*s.* 5*d.*]

A.D. 1856, March 25.—N° 709.

HARGRAVES, James.—" Improvements in the apparatus used " for dyeing fabrics." This invention relates to improvements on the apparatus hitherto used "for dyeing fabrics and yarns by " stopping out certain or determined parts of the fabrics by pressing surfaces, allowing the dye liquor to get to the other parts of " the fabrics or yarns not pressed on;" and consists "of three " strong plates, or it may be open frames; two of them have axes " or necks formed on or fixed thereto; these two frames are connected together, but at a distance apart, by screw bolts and " nuts or other convenient means; the third plate or frame is " capable of sliding on the screw bolts, and by means of screws " of being set up from one outer plate towards the other, so as to " press a series of frames together, such frames, as heretofore, " being provided with pressing surfaces, between which the " fabrics are placed and pressed. A rotatory motion is communicated to the combined apparatus above explained when in the " dye liquor, by means of a pinion taking into a cog wheel fixed " on one of the axes above mentioned."

[Printed, 8*d.*]

A.D. 1856, March 27.—N° 738.

BUFTON, Edward.—(Provisional Protection only.) "An improved ink for marking linen and other fabrics, and in the case " or holder for containing the same, and the implements to be " used therewith."

"The improved ink consists in combining a salt of platinum " with silver metal, in the manufacture of an indelible marking " ink for marking linen, and other fabrics; I also add a portion " of bichloride of platinum, which I obtain in the usual chemical " way. And as regards the case or holder for containing the same,

" the improvement consists in so constructing the same as that " the part which contains the ink, as also the bone or quill nibs, " or other marking implements, and the holder, slides within an " outer case or cover, open at both ends."

[Printed, 3*d.*]

A.D. 1856, April 4.—N° 815.

GARDISSAL, CHARLES DURAND.—(A communication.)—(Provisional Protection only.) "The treatment or preparation " of fabrics or textile materials to be dyed or printed." This invention consists in causing textile materials to imbibe in the " cold shade " " nitric acid or rather a mixture of nitric acid and " sulphuric acid." "Such materials combine with the constituent elements of the nitric acid and thus prepared are in the " best condition for receiving colouring matter with or without " the assistance of mordants." "These may be imbibed in the " textile fabrics previous to the dyeings, or dissolved in suitable " quantity in the coloring matter." The power of fabrics to absorb color, before the application of mordants, may be increased by dipping them in " a bath of milk, of solutions of albumina, of " gelatine, of gluten, or of any other azoted matter that may be " coagulated by heat, by acids, or by any chemicals or agent forming insoluble compounds with these matters." "Albumina" may be fixed by "gelatine, tannin, gall nut, &c." "Fine black " colours" may be obtained by the combination of tannin with gelatine. "Baths of fatty matters" are employed "for the better " fixing of certain colors."

[Printed, 3*d.*]

A.D. 1856, April 9.—N° 859.

ARMOUR, JOHN.—(Provisional Protection only.) "Improvements in bleaching textile fabrics and materials." These improvements consist in steeping the goods, more especially sewed goods or embroidered muslins, previous to bleaching, "in oil of " turpentine, coal or mineral naptha, rosin, oil, benzone, benzele " or benzole, sulphide of carbon, and chloroform," "either singly " or mixed one or more of them together, and with any other " ingredient which may be suitable for dilution, or for cheapening " the process, such as methylated spirit."

[Printed, 3*d.*]

A.D. 1856, April 19.—N° 942.

VARILLAT, William Jean Jules.—(Provisional Protection only.) "Improvements in the apparatus for the extraction "of colouring, tanning, and saccharine matters from vegetable "substances." "This invention consists of an apparatus formed "by a number of cylindrical vessels according to the nature "of the matter to be extracted; these cylinders are made "to communicate with each other by means of cocks placed at "the top and bottom; the lower ones are placed beneath a "double bottom with trellice work, and the upper ones above "other trellice work, which rests on the matter to be treated, "which is placed in each cylinder in such wise as to allow the "liquids to filter through. The cylinders may be placed on a "turning platform, so that each time one of the cylinders is "emptied or filled, the cylinder may be placed in a right "position" as regards the proper circulation of the liquid, which is caused to proceed from that most exhausted to that least so. The liquid enters the first vessel at the bottom, filters upwards, and on to the second at the top, and so on through the series.

[Printed, 3*d*.]

A.D. 1856, April 24.—N° 981.

SCHRATZ, Abel Désiré.—"Improvements in preparing "colours for the impression of woven or textile fabrics, or stuffs "of any kind." "My invention consists in making use of linseed for thickening the colours in their preparation for printing "textile stuffs or fabrics of any kind," "or for printing paper "hangings." "The proportion of linseed to be used, either alone "or mixed with gum arabic, or with artificial gum, starch, and "other mucilaginous substances, depends upon the nature of the "colours employed." The following recipe for "a rose-coloured "pattern on barège fabric" will illustrate the mode of using linseed:—"In an ammoniacal cochineal bath, at 2¼ degrees of "Beaumé's acid scale, pour 1·75 pint of water, heat it to 104 "degrees Fahr., add about three ounces of unbruised linseed, heat "the whole to 212 degrees, and keep it boiling for about five "minutes, then add two ounces of alum and leave the whole to "cool."

[Printed, 3*d*.]

A.D. 1856, April 29.—Nº 1019.

PILLING, William.—" An improvement in the treatment of " yarns or threads, and in the apparatus connected therewith." " In the treatment of yarns or threads preparatory to doubling, " or to dyeing, or to other operations, in which they are submitted " to wet processes, my invention consists in exhausting the air " from the yarns or threads in order to render them more susceptible of the liquid with which they are to be impregnated, and " thus to effect complete saturation." "The yarn, &c. to be " saturated is placed in a suitable metallic vessel, which is capable " of being made perfectly air-tight, and the top is connected with " an air pump or pumps." When a vacuum is produced, the liquor is admitted; and when the yarn, &c. is fully saturated, the liquor may be drawn out by the pump; " the superfluous moisture " is then dried from the yarn, either by placing it in a steam " chamber," or in the ordinary manner. "The operations of exhausting and saturating may be performed consecutively in " the same vessel or chamber as that of drying." The liquid or composition with which the yarns are to be saturated previously to doubling consists of,—" say, to twelve pounds of curd " soap add three pounds of mutton suet and two pounds of soda, " slightly, more or less, the whole to be boiled and used in a " liquid state." The above treatment " has the effect of laying " the loose fibres of the yarn and giving it a smooth and even " surface."

[Printed, 10*d.*]

A.D. 1856, May 6.—Nº 1068.

BROOMAN, Richard Archibald.—(A communication.)—" A " method of treating guano and other matters containing uric acid, " and the manufacture from the products arising from such treatment, as well as from uric acid, of new colouring matters, and the " fixing and application thereof." "This invention consists, firstly, " in the purification of guano and other matters containing uric " acid, by means of acids which dissolve all injurious matters, " and leave the uric acid mixed with insoluble and inoffensive " matters. These purified agents are as fitted to be used in the " manufacture of the various products arising from the oxidation

A.D. 1856, May 21.—Nº 1205.

HOLDIN, JAMES, and **DORNING**, WILLIAM JOHN.—(A communication.—Provisional Protection only.) "Improvements in bowking, bleaching, washing, and cleansing textile "fabrics and materials." "According to these improvements "the wheel or rotatory case itself [the ordinary dash-wheel] "may be made of the ordinary form, but it is perforated round "its circumference, and is surrounded by a stationary case or "cover, leaving a narrow space between the fixed and rotatory "surfaces. Steam is admitted into the external fixed chamber, "and finds its way through the perforations in the rotating wheel, "and there mingles with the goods and ingredients employed in "the process. On the periphery of the dash wheel are one or "more scoops or lifters, which, as the wheel rotates, continually "scoop up the fluid ingredients from the bottom of the outer "case, and pour them back into the dash wheel through the "perforations in the latter."

[Printed, 3d.]

A.D. 1856, May 23.—Nº 1234.

GEDGE, JOHN.—(A communication from Pierre Mathieu.)—Provisional Protection only.) "Improvements in obtaining a "material used in dyeing." "The improved means which I use "consist in the manufacture of the 'aluminous sulphate,' by sub-"mitting the properly chosen clay to the action of sulphuric acid. "The iron that is always found in such of the clay is disengaged "through the prussiate of potash." "The sulphate being refined and "properly concentrated, is submitted to the action of ammonia." The alumina thereby precipitated is collected, washed, and gently dried. "The alumina thus prepared will dissolve in alkalis and "acids, and is fitted to replace in dyeing the alums and 'aluminous "sulphate.'"

[Printed, 3d.]

A.D. 1856, May 30.—Nº 1281.

BETHUNE, DONALD.—(Provisional Protection only.) "Improvements in apparatus for dyeing." This invention consists "in the formation or production of a vacuum or partial vacuum

" in a vessel, chamber, or vat in which the materials to be dyed " are placed, and the forcing of the dye liquor into the said " chamber or vat, after the formation or production of the vacuum " or partial vacuum, by a force pump." " In this chamber an " inner box or receiver, capable of holding the materials to be dyed, " is placed." " The outer edge or circumference of this inner " receiver is formed of wire gauze, perforated zinc, or other " suitable material, the holes or interstices in which are of such " a size as to allow the dyeing fluid or liquor to pass through " freely and enter the material to be dyed."

[Printed, 3*d*.]

A.D. 1856, June 3.—N° 1323.

VERDEIL, François Auguste.—(Provisional Protection only.) " Improvements in obtaining a particular green colouring matter " from artichokes and thistles." " The plants are to be cut into " small pieces, or bruised and soaked in water, and while so " soaking, or afterwards, the liquid is to be raised to the boiling " point. The liquid being pressed out from the plant, is then " to be filtered, and carbonate of soda or other alkali added, the " liquid being constantly stirred." The fluid may be evaporated to dryness at a low temperature; or the coloring may be precipitated by " alcohol" or " other spirit," or by " acids," or by fermentation. A " lake" may be obtained from the solution by means of " alumina or tin." " The coloring matter is applicable " to all purposes of printing, dyeing, and painting."

[Printed, 3*d*.]

A.D. 1856, June 9.—N° 1367.

HOLDIN, James.—" Improvements in machinery or apparatus " for bowking, bleaching, dyeing, and washing textile fabrics or " materials." This invention consists " in the employment or " use of a revolving kier or wash wheel for such purposes, enclosed in a steam-tight casing or chamber. The revolving kier " is furnished on its periphery (or at its sides) with shallow " 'buckets,' in a similar manner to an over-shot water wheel, " which buckets have their sole perforated, so that as the kier or " wash wheel revolves in a reservoir of water or other liquid, the " 'buckets' upon the periphery of the wheel take up the liquid ;

A.D. 1856, May 21.—N° 1205.

HOLDIN, James, and DORNING, William John.—(A communication.) — (Provisional Protection only.) "Improvements in bouking, bleaching, washing, and cleansing textile fabrics and materials." "According to these improvements the wheel or rotatory case itself [the ordinary dash-wheel] may be made of the ordinary form, but it is perforated round its circumference, and is surrounded by a stationary case or cover, leaving a narrow space between the fixed and rotatory surfaces. Steam is admitted into the external fixed chamber, and finds its way through the perforations in the rotating wheel, and there mingles with the goods and ingredients employed in the process. On the periphery of the dash wheel are one or more scoops or lifters, which, as the wheel rotates, continually scoop up the fluid ingredients from the bottom of the outer case, and pour them back into the dash wheel through the perforations in the latter."

[Printed, 3*d*.]

A.D. 1856, May 23.—N° 1234.

GEDGE, John.—(A communication from Dauriac, Mathieu.)—(Provisional Protection only.) "Improvements in obtaining a material used in dyeing." "The improved means which I use consist in the manufacture of the 'alumish sulphate,' by submitting the properly chosen argil to the action of sulphuric acid. The iron that is always found to stick to the clay is disengaged through the prussic potash." "The sulphate being refined and properly concentrated, is submitted to the action of ammonia." The alumina thereby precipitated is collected, washed, and gently dried. "The alumen thus prepared will dissolve in alcalis and acids, and is fitted to replace in dyeing the alums and 'alumish 'sulphate.'"

[Printed, 3*d*.]

A.D. 1856, May 30.—N° 1280.

BETHUNE, Donald.—(Provisional Protection only.) "Improvements in apparatus for dyeing." This invention consists "in the formation or production of a vacuum or partial vacuum

" in a vessel, chamber, or vat in which the materials to be dyed " are placed, and the forcing of the dye liquor into the said " chamber or vat, after the formation or production of the vacuum " or partial vacuum, by a force pump." " In this chamber an " inner box or receiver, capable of holding the materials to be dyed, " is placed." " The outer edge or circumference of this inner " receiver is formed of wire gauze, perforated zinc, or other " suitable material, the holes or interstices in which are of such " a size as to allow the dyeing fluid or liquor to pass through " freely and enter the material to be dyed."

[Printed, 3*d.*]

A.D. 1856, June 3.—N° 1323.

VERDEIL, François Auguste.—(Provisional Protection only.) " Improvements in obtaining a particular green colouring matter " from artichokes and thistles." " The plants are to be cut into " small pieces, or bruised and soaked in water, and while so " soaking, or afterwards, the liquid is to be raised to the boiling " point. The liquid being pressed out from the plant, is then " to be filtered, and carbonate of soda or other alkali added, the " liquid being constantly stirred." The fluid may be evaporated to dryness at a low temperature; or the coloring may be precipitated by "alcohol" or "other spirit," or by "acids," or by fermentation. A "lake" may be obtained from the solution by means of "alumina or tin." "The coloring matter is applicable " to all purposes of printing, dyeing, and painting."

[Printed, 3*d.*]

A.D. 1856, June 9.—N° 1367.

HOLDIN, James.—" Improvements in machinery or apparatus " for bowking, bleaching, dyeing, and washing textile fabrics or " materials." This invention consists " in the employment or " use of a revolving kier or wash wheel for such purposes, enclosed in a steam-tight casing or chamber. The revolving kier " is furnished on its periphery (or at its sides) with shallow " 'buckets,' in a similar manner to an over-shot water wheel, " which buckets have their sole perforated, so that as the kier or " wash wheel revolves in a reservoir of water or other liquid, the " 'buckets' upon the periphery of the wheel take up the liquid;

“ and as each ‘bucket’ ascends to the uppermost part of the “ machine, the liquor percolates or rains through the fabrics “ under operation in the several compartments of the kier or “ wash wheel, being thus distributed, as it were, in a continuous “ shower upon and through the goods or pieces.” “ The steam-“ tight outer casing ” may be furnished with the necessary “ steam “ guage,” “ safety valve,” and “ vacuum valve,” and also with the necessary piping to admit the liquors and steam at high or low pressure, and for their exit. The keir may be actuated by suitable gearing, and a preference is given to the “ worm and “ wheel.” There are suitable openings in the casing, and corresponding openings in the periphery of the wheel, for the admission of the goods into the different compartments. “ An “ alternate reciprocating motion is then imparted to the wheel (in “ preference) by the mangle gearing, so as to cause it to make “ one or more revolutions in one direction, and then return in the “ opposite direction,” which prevents the entangling of the goods.

[Printed, 10*d.*]

A.D. 1856, June 12.—N° 1395.

STENHOUSE, John.—“ Improvements in the preparation of “ a decolourising material suitable for the treatment of acid, alka-“ line, and neutral solutions.” “The way in which I produce “ my porous vegetable charcoal is chiefly as follows:—I form a “ very intimate mixture of either hydrate of lime, unslacked lime “ in the state of the finest powder, calcined magnesia, or the light “ subcarbonate of magnesia of the shops, with certain vegetable “ substances, such as maize, wheat, and other kinds of flour, com-“ mon resin, or calophonium, pitch, wood tar, asphalte, or bitumen, “ coal tar, and coal tar pitch. This mixture of lime or magnesia “ and vegetable matter is then heated to redness in close vessels, “ that is, in ordinary covered crucibles, or in cast-iron retorts, “ until the vegetable matter is entirely carbonized. The mixture “ when cold is then digested with hydrochloric or sulphuric acids, “ according as lime or magnesia has been employed, and repeat-“ edly edulcorated with water on a filter until everything soluble “ has been removed. The porous charcoal remaining on the filter “ is the decolorizing agent.”

[Printed, 3*d.*]

A.D. 1856, June 14.—N° 1409.

MACHARD, JEAN ETIENNE.—(A communication from Vautravers, J. P.)—(Provisional Protection only.) "Improvements in "printing or dyeing skeins, tissues, or other textile fabrics of "cotton, wool, flax, and other fibrous substances." "The skeins, "tissues, or fabrics are immersed or passed through a solution "of catechu, and left for some hours or even days, and then dyed "in the indigo by the ordinary processes; or they are first dyed "in the indigo and afterwards immersed in the solution of "catechu." "When white portions are required they are previously printed with a 'resist,' or subsequently with a discharge." "Yellow or orange colors" may be produced by afterwards dyeing the lead of the resist with "chromate of potash."

[Printed, 3*d*.]

A.D. 1856, June 14.—N° 1410.

DE CHATEAUNEUF, HECTOR GRAND.—"Improvements in "apparatus for washing and bleaching clothes and other materials." The Patentee uses "heated steam at three atmospheres "in separate boilers (but common to all the tubs), with washing "vessels closed by means of lips or covers fixed with screws, or by "any other convenient means which can resist a pressure of 1½ atmospheres." The apparatus used for washing consists of a modification of the dash-wheel. This wheel is a circular revolving rim supported by four arms from the centre, and working in a box or cistern which contains the liquid employed. The rim is a circular chamber, and is perforated with holes for the admission and exit of the liquid. It also contains several "overfalls" shaped like "a ploughshare," which "overthrow the clothes" as the rim is caused to revolve. The "rinsing wheel" is also a modified dash-wheel, the novelty of which "consists in its large size;" its doors placed in front [on the periphery] instead of the apertures placed until now on the sides; and in the driving teeth being on the rim, worked into by a pinion.

The Patentee puts clothes into baskets, and with a crane places them over each other in a vessel, wherein they are "washed" by the percolation of "lie," suitably supplied, and at a sufficient temperature. The remains of the "lie" at the end of the "washing" may be expelled by steam and preserved for future use.

"The refining of the liquids is done by filters" composed of sponge and charcoal held down on a bed of sand by a "gridiron" covered with "wire gauze." The liquors are caused to pass down through the sponge and sand and to rise in another vessel through beds of fine sponge and sand; and lastly, if desired, through "a "sponge imbibed with hydrate of lime." "In this circulation "the waters are refined and pass in a caustic state."

The Patentee also claims a "propagator of heat," consisting of a furnace and pipes enclosed in "a cast-iron cupola," so arranged and combined that the "heat circulates from the "warmer to the colder pipes, and the contrary in respect of the "air." The air so treated is passed into the drying chamber wherein the clothes to be dried are placed, and when saturated there with moisture is passed on to a condenser, where the moisture is again condensed on ranges of zinc pipes full of water, and the heat in part withdrawn from the air. The air still slightly heated passes from thence back into the piping in the "propagator of "heat," and thus forms a continued circulation. The supply of water to the condensing pipes is regulated by a groove or valve, which is opened and shut by a weight suspended in mercury acted on by a counterpoise. The varying heat of the condenser expands and contracts the mercury, causing it to act on the weight.

Lastly, the Patentee "extracts from the clothes, by pressure, the "greatest quantity of liquid, through the means of a piston "pressing on the clothes actuated by a vacuum underneath."

[Printed, 1*s*. 11*d*.]

A.D. 1856, June 19.—N° 1448.

PARSONS, William.—"Improvements in washing and bleaching "woven fabrics." "The washing is effected by means of a "machine consisting of a four-sided wooden frame, which revolves "on a horizontal axis in a cistern containing boiling water. At "one of the angles of the wooden frame a bobbin or reel is "mounted, on which the piece of fabric to be washed is wound. "In the centre of the wooden frame another bobbin or reel is "mounted, which at the commencement of the operation is empty. "The cloth from the full reel passes round three sides of the revolving reel over brushes or a surface of vulcanized india-rubber "fixed to each side of the frame to the central reel, which receives "a slow motion on its axis by suitable gearing; and just before

" the cloth is wound on the central reel, it is acted on by a revolving brush or surface of vulcanized india-rubber. When the " central reel is full of cloth, it is removed from this washing " machine to an apparatus in which the cloth is subjected to the " action of the various liquors used in bleaching. This apparatus " consists of a cistern, in the two ends of which are a series of slits " as long as the cloth is wide, and these slits have valves to prevent the liquor contained in the cistern from escaping. The " cistern contains a series of fixed partitions parallel to the ends, " and having similar slits in them; in between each pair of fixed " partitions there is a moveable wooden frame also having slits " similar to those in the ends of the cistern, and these moveable " frames are worked up and down by cranks or otherwise. The " reels from the washing machines are mounted in a suitable frame, " and the cloth from several of them is passed into the cistern " through each slit in one of the ends of the cistern; and then " through the corresponding slits in each of the fixed partitions " and moveable frames contained in the cistern; and, lastly, out of " the cistern through one of the slits in the other end. Thus it " will be seen that the cloth is rubbed between each of the fixed " partitions and moveable frames, and these are, by preference, " covered with india-rubber."

[Printed, 1*s.* 4*d.*]

A.D. 1856, June 27.—N° 1515.

JOHNSON, John Henry.—(A communication from Du Montluc, Etienne Philibert Theodore Tassy, and Ganthieu, Louis Jules.) " Improvements in the production of carbonate of barytes." The process consists " in decomposing an aqueous solution of the " sulphuret of barium by the aid of carbonic acid gas, assisted by " the presence of a certain quantity of potash, soda, or other " alkali." The carbonate of barytes so formed may be used in various manufactures, as, for example, in the manufacture of paints and in the production of painted and glazed papers, and as a mordant in dyeing in the state of acetate or pyrolignate of barytes, as a substitute for the acetate of lead.

[Printed, 4*d.*]

A.D. 1856, July 2.—N° 1552.

FLEMING, James, junior.—" Improvements in bleaching, washing, cleansing, and preparing textile fabrics and materials."

These improvements consist, first, in "the application and use in " bleaching, washing, cleansing, and preparing apparatus of cased " revolving winches or reels supplied internally with steam or other " fluid, such as air, water, or chemical fluid, which steam or other " fluid is caused to issue trough perforations in the sides of the " winches or reels, and acts upon the goods or materials passed " round them." "Second, the system or mode of bleaching," &c., " wherein the goods are passed round winches or reels over and " through water or chemical fluids, or from one portion of the " apparatus to another, such winches or reels being cased and " supplied internally with steam or other fluid, such as air, water, " or chemical liquid, which issues through perforations in the " sides of the winches or reels, and acts upon the goods or materials passed round them."

[Printed, 1*s.* 4*d.*]

A.D. 1856, July 3.—N° 1563.

PENDLEBURY, John.—" Improvements in machinery or apparatus for bleaching or cleansing textile fabrics or materials." These improvements consist in the use of a separate closed " liquor pan or " vessel placed in connection with the goods keir by means of a communicating pipe extending from the top of one vessel to the " other, and also another pipe extending from the bottom of one " vessel to the other, so that constant circulation of the bleaching " liquor can be maintained through the goods in the close or confined keir by the action of the high-pressure steam, which is " introduced from the boiler or generator by means of a steam " pipe passing through an enlarged portion of the upper connecting pipe and into the liquor pan or vessel, such steam pipe " descending and opening into the body of the liquor for the purpose of effecting its ebullition and circulation. The steam employed may be at any suitable pressure up to one hundred pounds " on the inch."

[Printed, 6*d.*]

A.D. 1856, July 9.—N° 1627.

KAY, Richard Dugdale.—(A communication.)—" Improvements in machinery or apparatus for pressing, straining, " sifting, or refining colors and thickened mordants." This invention consists in the " use of a case or cylinder, in which a " piston is worked either by hand or power to press the color

" through a cloth made of cotton, linen, hair, (wire gauze), or " other suitable material at the bottom of the case or cylinder." " The bottom of the piston (which is removeable) may be made of " wood, copper, brass, gutta-percha, caoutchouc, or other suitable " material." For convenience the cylinder is "fixed on pivots " so that it may be easily inclined or brought towards the opera- " tion for the purpose of introducing the colouring matter or " cleaning the vessel."

[Printed, 1*s*.]

A.D. 1856, July 18.—Nº 1695.

GERBER, JEAN.—(Provisional Protection only.) " Improve- " ments in printing, dyeing, or impregnating fabrics, yarns, " and threads, and in preparing metallic and other powders to be used for these purposes." " This invention consists in " printing woven fabrics with a metallic powder mixed with a " suitable vehicle, such as albumen;" also, " in a method " of preparing certain metallic and other powders suitable " for printing or dyeing fabrics and yarns." " To obtain the " powder of tin, a solution is taken of the sulphate, hydro- " chlorate, or other salt of the protoxide of tin; the tin is then " precipitated by plunging plates of zinc into the solution in the " usual well-known manner," but " the plates must be kept in " a state of strong agitation till all the tin is precipitated." It is then " washed several times with water; a certain quantity of " alkali, soda, potash, or ammonia, is then added to the washed " powder." " The powders of copper and bismuth are prepared " in the same manner." " In the last operation the sub-borates, " and especially the sub-borate of soda or borax," is added instead of alkali. The " powder of copper" " must be dried, sheltered " from the contact of air, or in a current of hydrogen gas, or in " any other gas not possessing an oxydising property;" it is " then raised to a high temperature," which prevents further influence of the air.

" The sulphurets, phosphurets, cyanurets of lead, copper, " bismuth, and other metals are obtained in the moist way by " processes well known in chemistry." By drying and heating these substances " to a high temperature, but not high enough " to melt or agglomorate them," they become " susceptible of " taking a metallic, nacreous, or silky lustre," and " possess all " the properties of the simple metallic powders."

A " lustre " is given to the " yarns after they have been printed " or dyed," while still moist, by causing them " to pass round " rollers heated by steam or otherwise; in which rollers are " formed V shaped grooves; the yarn afterwards passes between " bands of leather, and by the friction of these bands of leather " the metallic lustre is obtained."

[Printed, 3*d*.]

A.D. 1856, July 19.—N° 1700.

ARMOUR, JOHN.—(Provisional Protection only.) " Improve- " ments in bleaching, washing, or cleansing textile fabrics and " materials." The circumferential portion of the wheel, case, or chamber [of the ordinary dash-wheel or other similar apparatus] is made double, or with a jacket in the form of an annular casing. The axle or shaft of the wheel is made tubular, for the purpose of admitting steam, hot air, or hot water through it to the enveloping casing, so that the wheel may thus be kept constantly heated to a high temperature, if necessary. " In addition " to these arrangements, the wheel may be made to revolve in a " vessel of hot water, or over a heating chamber of any convenient " kind, and containing any convenient bleaching material."

[Printed, 3*d*.]

A.D. 1856, August 13.—N° 1895.

KAY, RICHARD DUGDALE.—(A communication.)—" Improve- " ments in machinery or apparatus for washing, scouring, cleaning, " preparing, dyeing, or finishing woven fabrics, yarns, or threads." These improvements consist " of a combination of three well-known " systems, which, although extensively used separately, have not " been hitherto applied in combination, the said systems being re- " spectively known by the technical terms of 'clapping or beating,' " 'methodical washing,' and 'accumulation or advance.' And, " secondly, to the arrangement and construction of machinery or " apparatus for washing, scouring, preparing, or dyeing yarns or " threads."

The specification gives several modes by which the combination may be carried out for the above purposes of " clapping or beating, " methodical washing, and accumulation or advance." The arrangement may consist of a cistern to hold the water or liquor, which is divided into several compartments. Above the cistern is placed two separate " flappers " or fly winces, over which the piece passes and is guided forwards by a rail with pegs. There are also two skeleton rollers round which the piece passes, and by means of which it is conducted into the succeeding compartments of the cistern. The piece, each time it is brought into the cistern, is allowed to accumulate before it is again passed over the "flappers." Or the arrangement may consist of several cisterns placed end to end. The fabric to be washed, &c. is drawn into the first cistern by means of two drawing rollers, and there allowed to accumulate. It is then caused to pass up a vertical tube or channel suspended over the cistern, down which a stream of water is caused to run, then over a guide roller, and descend through between squeezing rollers into the second cistern, where it is again allowed to accumulate before it proceeds as above into the third cistern, and so on.

Yarns or threads may be "washed, scoured, prepared, or dyed" by an apparatus consisting of a "hook or pulley used to support " the hank or skein of yarn or thread, the said hook or pulley " being fixed to the end of a lever, having a rectilinear or circular " alternate motion, easily varied or suspended, at the will of the " workman, either by the direct application of the hand or by " mechanical means." Any number of these hooks or pullies may " be used in dyeing the yarns.

[Printed, *s.* 11*d.*]

A.D. 1856, August 16.—N° 1918.

HODGKINSON, Alfred. — (Provisional Protection only.) " Improvements in bleaching, scouring, and cleansing plain and " embroidered fabrics. Steep the fabric for ten or twelve hours " in a solution of caustic soda and black soap. Then pass it " at width or otherwise through a similar solution to the above, " at boiling heat, and immediately through one or more mangles, " squeezers, or squeezing rollers, made of wood, or covered with " any other material, placed in a horizontal or vertical position; " in addition to which I use circular or flat brushes, fixed in such " a manner that they operate upon the goods while passing " through the rollers. Repeat the operation of passing the goods " through the solution and squeezing rollers until the embroidered " work is thoroughly cleansed from the grease, dirt, and other " impurities that have been imparted by the mechanical opera- " tion of sewing. Afterwards proceed to bleach out the goods " by the usual way."

[Printed, 3*d.*]

A.D. 1856, August 23.—N° 1964.

GATTY, Frederick Albert.—"Improvements in dyeing." " The nature of this invention consists in the use of chloride of " sodium, or common salt, in dyeing, with garancine, alizarine, " and other preparations of madder." " In performing this invention, I find that one pound of chloride of sodium placed in the " vat, with twenty-five pounds of garancine, alizarine, or other " preparation of madder, produces a good result. The amount of " chloride of sodium may, however, be increased up to four pounds " with benefit." " Instead of mixing the chloride of sodium with " the dye materials in the vat, as described, the chloride of sodium " may be previously mixed with the dye materials."

[Printed, 3*d*.]

A.D. 1856, August 26.—N° 1984.

PERKIN, William Henry.—"Producing a new coloring " matter for dyeing with a lilac or purple color stuffs of silk, " cotton, wool, or other materials." "Take a cold solution of " sulphate of aniline, or a cold solution of sulphate of tolmidine, " or a cold solution of sulphate of xylidine, or a cold solution of " sulphate of cumidine, or a mixture of any one of such solutions " with any others or other of them, and as much of a cold solution of a soluble bichromate as contains base enough to convert " the sulphuric acid in any of the above-mentioned solutions into " a neutral sulphate. Then mix the solutions and allow them " to stand for ten or twelve hours, when the mixture will consist " of a black powder and a solution of a neutral sulphate. Then " throw this mixture upon a fine filter, and wash it with water till " free from the neutral sulphate. Then dry the substance thus " obtained at a temperature of 100° centigrade or 212° Fahrenheit, " and digest it repeatedly with coal tar naptha (or other suitable " substance), until it is free from a brown substance which is " extracted by the naptha." " Then free the residue from the " naptha by evaporation, and digest it with methylated spirit, or " any other liquid in which the colouring matter is soluble, which " dissolves out the new coloring matter. Then separate the " methylated spirit from the coloring matter by distillation, at a " temperature of 100° centigrade, or 212° Fahrenheit."

"To produce the lilac or purple color in the material to be " dyed, add a strong solution of the coloring matter (preferring

" an alcoholic solution) to a dilute boiling solution of tartaric " acid or oxalic acid, and work the silk, cotton, or other material " through it when cold." "For dyeing wool it is found advantageous to boil the wool with the above solution and sulphate of " iron, to rinse it in water, and afterwards wash it in soap and " water."

[Printed, 3*d.*]

A.D. 1856, September 10.—N° 2106.

COOKE, Henry.—" Improvements in dyeing yarns or threads." This invention consists "in dyeing yarns or threads in the ordinary " dressing machines, usually called 'Kenworthy's tape leg ma- " 'chines,' and in the novel adaptation of such machines to this " purpose, by the application or use of dyeing or coloring troughs " or vessels, rollers, and other necessary apparatus for the per- " formance of such operation previously to the processes of dress- " ing or sizeing the yarn. This novel application enables me to " dye the yarns from 'beams' or bobbins, instead of in 'bundles,' " and thus considerably to economise the time and cost of winding " the yarns, as the rollers or beams of yarns, as prepared by the " beaming machines, are thus placed in the dressing machines to " be dyed, and afterwards passed through the ordinary dressing " and sizeing machines, as usual, when they are (after being thus " dyed and dressed) wound upon the beam or roller ready for " 'looming.'" "By dividing the colouring apparatus into sepa- " rate compartments," " any required varieties of colors may be " employed." The "yarn beam" may be formed of "metal, and " having perforations or apertures therein for the purpose of " steaming the yarn." The "friction upon the driving pulleys " may be encreased," "so as to create a drag upon the yarn " beam" when required, by means of a lever, upon which is placed a weight, which is propelled further from the fulcrum as the beam increases.

[Printed, 7*d.*]

A.D. 1856, September 12.—N° 2141.

BROOMAN, Richard Archibald.—(A communication.)—(Provisional Protection only.) "Improvements in treating " and purifying water to be used in the washing and scouring

" of wool, and in other washing and cleansing operations." " This invention consists in treating water containing lime or " calcareous impurities with caustic soda (preferring that at 38° " Beaumé), or caustic potash, either alone or combined with un- " slacked lime or refuse wash waters (holding greasy and soapy " matters in solution), which wash waters may be added to the " water to be purified before introducing the caustic soda or " potash."

[Printed, 3*d.*]

A.D. 1856, September 15.—N° 2157.

CRANSTOUN, George Cranstoun Trotter, **YOUNG**, George, and **LOVELL**, John.—" Improvements in the applica- " tion of steam for producing a boiling action in bleaching and " and other manufacturing processes." "The steam is made to " operate in these vessels [closed kiers], by forcing the liquid up " through a large tube, as is the case in the vomiting kiers, or it " enters beneath a perforated false bottom, through which it rises " and passes into and through the water or liquid and materials " to be operated upon, and placed above the false bottom."

" Hitherto the steam thus rising from or passing through the " contents of the kier has been allowed to blow off through the " waste steam pipe into the atmosphere; but according to our " present invention this steam is utilised, or made to give out " additional work." "Our invention is more particularly appli- " cable where a number of such boiling kiers are used; and in " carrying it out in practice such kiers or boiling vessels are so " connected by means of suitable pipes or passages, that what " would ordinarily be the waste steam from one kier is made to " produce the boiling action in another or second kier. The " steam rising from the contents of this second kier is conveyed " to a third kier, there to produce the boiling action, and so on, " throughout a range of any convenient number of kiers. From " the last kier of the range in action the steam, instead of " being allowed to blow off into the atmosphere, is made to pass " through a coil of piping immersed in the water (or it may be " sent directly into the water), from which the kiers are to be sup- " plied, so that this water may be raised in temperature, and a " further amount of fuel be thereby saved." In carrying out this invention " various kinds of vessels may be used, and also

" that the steam may be admitted into the vessels in various " ways. Thus, for example, where a number of steam dash-" wheels are used, the steam being introduced into such wheels for " the purpose of causing the contents to boil, the steam may be " conveyed from one wheel to another in succession, the wheels " being suitably constructed and provided with an arrangement " of piping."

[Printed, 11*d.*]

A.D. 1856, September 25.—N° 2252.

MUIR, Mathew Andrew, and WALKER, William James. —" Improvements in machinery or apparatus for sizeing or " dressing yarns or threads." This invention "relates to certain " improved modifications of what is technically known amongst " manufacturers as the 'tape' sizeing or dressing machines, as " commonly used for sizeing or dressing yarns or threads." The Patentees claim, first, "the general arrangement and construction " of machinery or apparatus " for the above purposes. Second, " the mode of arranging the warp beams for facilitating the " getting at them." The warp beams are placed in frames at different heights. Third, "the arrangement and construction of " the reeds of sizeing or dressing machines, and the parts con-" nected therewith." "These reeds are double dented, and made " without any bars on the upper sides of the reed frames, so that " the teeth are quite open, and the yarns or threads may be in-" serted in the reed with the utmost facility by simply dropping " them between the vertical teeth. The space between every " alternate tooth in each of the reeds is stopped at the centre by " a small piece of metal or other suitable material, which is sol-" dered or otherwise fastened to the adjoining teeth. By means " of this arrangement, when the reed is elevated a short distance, " one half of the yarns are lifted by the stops between the alter-" nate teeth, whilst the other half are not affected by the upward " motion of the reed." Fourth, "the system or mode of sizeing " or dressing yarns by passing them in separate series or colours " through distinct sizeing troughs appropriated to each color." The different sizeing troughs may contain different coloured dyes; and those threads to be stained off different colors are caused to pass through separate sizeing vessels, and are separately brushed and dried. "Fifth, the system or mode of dyeing or staining

" yarns or threads, by mixing colouring matter with the paste or " sizeing materials, as herein-before described." "Sixth, the sys- " tem or mode of 'mellowing' or softening the yarns or threads, " by causing a current of cold or moist air to be brought in con- " tact with the yarns or threads, before they are wound upon the " finishing beam." The cold air (which may be moistened with steam) is urged by a 'fanner,' through suitable pipes, against the yarns before they are wound on to the warp beam.

[Printed, 10*d*.]

A.D. 1856, September 26.—N° 2259.

WOODWARD, George Gower.—" Improvements in the " manufacture of carpets." The Patentee claims, " firstly, the " application of self-color and parti-coloured warps in combina- " tion to the manufacture of Kidderminster and Dutch carpets." " Secondly, in the process of weaving velvet, Dutch, and Brus- " sells carpets, I claim the combination of 'self-colour' and " parti-coloured warps working in the same reed of the slay." Thirdly, " improvements in dyeing parti-coloured yarns by means " of the apparatus described" in the specification, consisting " of a number of expanding slides, each pair being fastened to " cheek plates, and fitted on a main shaft supported by a suitable " framing. To the ends of these slides are attached semi-circular " pieces of metal, upon which the yarns are wound; the slides are " actuated by toothed wheels, by which the distance between the " semicircular pieces of metal may be encreased or diminished. " To each of the semicircular pieces of metal is fitted a spring clip, " which moves easily to and fro over the surface of the curve by " means of rollers fitted beneath. The yarns to be dyed are " wound on the semicircular plates, and on each pair is placed an " endless strap or band; this is marked with the color and places " where the yarn is to be dyed, and serves to guide the workman " in preparing the parti-coloured yarns. The yarn and the strap " or band are passed through the clips, and secured to the curved " plates by pressing plates actuated by screws; by means of the " clips the yarns may be moved round the curved plates as the " different portions are dyed. The vessels or vats containing " the dye or colouring matters are placed beneath the yarns; the " slides are actuated so as to bring the semicircular plates nearer

" together, by which a portion of the yarn on each pair of slide " plates is slackened; these parts are dipped into the dye vessels, " and the lids shut down; the yarns remain a sufficient time " therein to be dyed. The lids are then opened, and the slide " plates extended, by which the yarns are again tightened; the " whole of the semicircular plates are then rotated, so as to carry " the dyed portions of the skeins of yarn beneath the apparatus, " where the yarn is dried by means of heated air. These operations are repeated until the whole skeins are dyed the desired " colours." Modifications of this plan are also described in the specification.

"Fourthly, I claim the improved apparatus or machinery for " winding yarns," as described in the specification.

"And, lastly, I claim the mode or system of dyeing particoloured yarns," "and the apparatus described for that purpose." The yarn being wound on the frame; "above each of a " series of dye furnaces is fitted a frame work, which supporting " suitable bearers for carrying one of the frames. To the bearers " are attached ratchet wheels, by rotating which the frame may be " lowered to any desired depth into the dye furnace below. The " exact point to which the yarn is to be dyed is denoted by an indicator, attached by means of a hook to the upper part of the " frame, so that the workman may know exactly how far the " frame should be immersed into the dye. When the desired " shade or tint of colour is obtained, the frame is withdrawn " from the dye, and the operation repeated upon other parts of " the yarns, if desired," with the same or other colours.

[Printed, 10*d*.]

A.D. 1856, September 7.—N° 2271.

ORMEROD, John.—(Provisional Protection only.) "Improvements in machinery or apparatus for bleaching and washing " or cleansing textile fabrics and materials, applicable also to " the 'soaping' of printed fabrics." These improvements relate to washing machines, "in which a rotatory chamber or chambers " are employed, with or without steam, and within which the " goods to be treated are placed" " in separate portions [to " prevent their entangling] upon pegs, rods, or other such apparatus, adapted to the revolving chambers."

"Another arrangement consists in causing the goods, applied "in separate portions, as above described, to revolve within "stationary chambers, the processes being conducted with or "without steam.

[Printed, 3*d.*]

A.D. 1856, October 1.—N° 2295.

BEGG, James.—"Improvements in preparing and bleaching "textile fabrics and materials." This invention relates "to the "so arranging of preparing and bleaching apparatus that the "goods to be treated may be operated upon by the preparing "and bleaching agents in a continuous and most effective manner. "For this purpose a series of vats, chambers, or vessels [capable "of being closed] are arranged in two parallel rows, which rows "are in communication with each other, by means of pipes or "ducts suitably fitted with stop-cocks or valves. In the first, "for example, of one row of these chambers there is placed a "suitable washing or preparing liquor; in the second, a bleaching "liquor; and so on throughout the series, as may be required. "The goods to be treated according to this system are placed in "the bottom of a chamber in the opposite row, all the chambers "being heated by steam." The various washing and bleaching liquors are successively forced through the goods by means of a force pump, and the excess of liquor is caused to re-enter its particular chamber. "At the close of the process the valves and "pipes are so adjusted that the pump draws off all the moisture "from the goods, and leaves them dry for removal."

[Printed, 6*d.*]

A.D. 1856, October 10—N° 2378.

GATTY, Frederick Albert.—"Improvements in dyeing." This invention consists "in the use of nitrate of soda, sulphate of "soda, chloride of sodium, sulphate of magnesia, sulphate of lime, "and chloride of calcium in dyeing cotton with logwood, quercitron bark, sapan wood, peach wood, lima wood, and other "dyewoods of the same description." "I find that one pound of "either of the above-named salts, or a mixture of two or more of "them, placed in the vat with fifteen pounds of any of the above-named dye materials, produces a good result; the quantity of "the salts may, however, be varied, as an excess produces no bad

" effect. Instead of mixing the said salts with the dye materials " in the vat, as described above, they may be previously mixed " with the dye materials. The process of dyeing is carried on in " the ordinary manner."

[Printed, 3*d*.]

A.D. 1856, October 13.—Nº 2398.

ROSCOW, John.—" Improvements in machinery or apparatus " for cutting or rasping dye woods." " The plate in which the " cutters are set has its plate or front divided into three parts or " divisions in circles, the two outside parts being left plain, and " the part between these being contrived to hold any quantity of " cutters required, arranged round and radiating from the centre " of such plate. This disc or plate is bevilled from the inner edge " of the cutting division to the periphery, in a similar manner to " a 'bevil wheel,' and has motion imparted to it in a direction " from right to left of its centre, or vice versa, the wood (which " may be in small pieces) being supplied to the cutters at the " side, about the level of the axis of the disc." The wood supplied may be " cut, rasped, or chipped, according to the formation of " the cutters."

[Printed, 5*d*.]

A.D. 1856, October 14.—Nº 2402.

BREMNER, Samuel.—" Improvements in pouches or envelopes, " and in machinery or apparatus for manufacturing or producing " the same." These improvements consist, first, in shaping an envelope so that two of its sides are very narrow, and serve merely for the attachment, by gumming or pasting of the third folding piece, which forms the back of the envelope. The fourth folding piece or " flap " is made of the full or nearly the full size of the envelope. This form admits of printing or ornamenting on the back and front of the envelope, as well as on the interior. The cutter employed, of the suitable shape, is elevated and depressed by means of a lever, and is attached to a horizontal plate to which a rotatory movement is imparted, the amount of rotation being regulated by stops or pins; it may thus be set round to a new position after each cut, and thereby make the successive cuts dovetail into each other. In order to insure coincidence between the printed or ornamented parts of the sheet or paper and the action of the cutter, the sheets of paper are threaded one after the other upon guide pins, suitably placed on the frame or board; and to prevent the cutter from retaining the cut blanks, it is provided with an internal plate, which is attached to pins which slide up and down in suitable holes, and a helical spring, which depresses the plate as the cutter recedes, and discharges the cut blanks. The gumming is effected by a vessel with a lower opening covered with cloth, attached to a spindle depressed by a treadle, and elevated by the elasticity of bands of india-rubber; and the folding may be partly performed by depressing the gummed envelope by means of a plate into a recess, and partly by the hand.

[Printed, 1*s*.]

A.D. 1856, October 18.—N° 2446.

DESHAYES, Jacques Felix.—"Improvements in machinery "for dyeing silk, cotton, or wool in hanks or skeins, or woven "fabrics." The Patentee claims, first, "the alternate contrary "motion of the hank bearars." "Secondly, the vertical motion "of the frame which permits the access of air to the hank during "the operation of dyeing, or of dyeing it only in part." Thirdly, "the break which regulates the lowering of the frame." Fourthly, "the arrangement of the dryer which expresses the superfluous "dyeing fluid from the materials dyed." And, fifthly, "the means "of preventing the hanks rising to the surface." This apparatus consists, generally, of a dye vessel made of wood or other suitable material, over which, working in bearings on a frame, are placed several small winces or "hank supporters," of a triangular form. An endless chain is caused to revolve, over toothed wheels, at each side of the frame, and works into small wheels fixed on the ends of the winces, thereby causing them to revolve in opposite directions. The frame which carries the above winces may be by mechanical means hoisted up so that the hanks of yarn may be placed on the winces, and again lowered so that the yarns may enter the dye liquor. After dyeing, the hanks of yarn, while still on the small winces, may be squeezed by passing them through between squeezing rollers having a grooved recess to allow the wince and pinion to fall into. The hanks of yarn are kept down in the liquor when made to boil by means of rollers passed through the lower double of the hanks.

[Printed, 10*d*.]

A.D. 1856, November 1.—N° 2563.

HUGHES, Edward Joseph.—"An improved mode or method "of concentrating the colouring matter of certain vegetable sub- "stances." This invention consists "in subjecting barks, berries, "and other vegetable substances containing colouring matter, or "any preparations or combinations thereof, to the action of sul- "phuric acid, either in a concentrated state or very slightly diluted "with water, keeping the mixture perfectly cool during the ope- "ration, in contradistinction to the methods at present known, "in which heat up or near to the boiling point is indispen- "sable."

[Printed, 3*d.*]

A.D. 1856, November 13.—N° 2679.

FRANCIS, William, and HOOPER, James.—(Provisional Protection only.) "Improvements in tanning and dyeing leather, "linen, cotton, wool, hair, and silk, and fabrics composed of any "of these substances." "Hides, skins, or other substances to be "tanned or dyed are to be placed in an exhausting vessel or "chamber and the air exhausted therein; and after exhaustion, "the tanning or dying liquor is to be forced in by hydraulic or "other pressure, whereby tanning and dying may be performed "in an expeditious and complete manner."

[Printed, 3*d.*]

A.D. 1856, November 15.—N° 2707.

PYE, George.—"Improvement in treating and bleaching "cotton." "The process consists in subjecting the cotton, "whether in the raw state or in the state of sliver, or roving, or "yarn, or thread, or woven fabric, to the action of a solution of "fuller's earth combined with steam and alternating pressure, for "the purpose of cleansing them from the impurities contained in "the raw cotton, as well as those contracted during the process of "manufacture; thus rendering unnecessary the severe treatment "at present in use as a preparation for bleaching, dyeing, and "printing." "The solution I prefer is at the rate of about 5lbs. to "each gallon of water."

[Printed, 3*d.*]

A.D. 1856, November 28.—N° 2815.

HIGGIN, James.—“ Improvements in treating certain vegetable “ dye stuffs or preparations therefrom, so as to obtain a colouring “ substance of increased purity.”

The Patentee claims “ the use of alkalies, alkaline earths, salts “ of alkalies or alkaline earths, or other substances capable of “ combining with the pectic acid, resinous or other impurities of “ madder or preparations therefrom, at temperatures above the “ natural temperature of water for the purpose of removing or “ rendering innocuous those impurities.” This invention may be applied to “ Turkey madder of the finest quality,” as follows:— To five hundredweight of the madder made into garancine in the usual manner, “ I add about two hundred gallons of water and a “ solution of arsenite of soda, made by boiling seventeen pounds “ of crystallized carbonate of soda dissolved in water, with excess “ of arsenious acid, for half an hour, filtering out the undissolved “ arsenious acid and using the clear liquor only. I then heat the “ mixture to the boiling point or nearly so for an hour; when “ cool I put it in a filter and wash it with two hundred gallons “ of water or till the arsenite liquid is all washed out. The “ garancine is then ready for use.” Other modes of treatment may be adopted and other salts used with analogous effects. Other quantities may be employed when garanceux or extract of madder is operated upon.

[Printed, 4*d.*]

A.D. 1856, December 1.—N° 2845.

BARDOT, Henri Nicolas Denis.—(Provisional Protection only.) “ Improvements in treating or preparing colours for “ printing.” This invention consists “ in substituting for the “ above matters (starch, fecula, gluten, gums, &c., used as “ thickeners of colours), decoctions of lichen, pearly moss, alga “ fucus, seaweed, and generally of all mucous plants. These “ decoctions being made, I add to them either alums, silicates, or borates, &c., together or separately, in certain and “ suitable proportions, according to the colors required, so as “ to prevent their return to the liquid state. After this operation “ I reduce them into cakes or jellies by means of heat, and I use

" the cakes or jellies thus obtained for thickening the colours " required."

[Printed, 3*d.*]

A.D. 1856, December 2.—N° 2851.

BROOMAN, Richard Archibald.—(A communication from Bouchet, Henry.) — " Improvements in bleaching." A solution " of soap is prepared at the rate of from two to four pounds " soap " to " 45 gallons of warm water," and added to the pulp to be bleached, and stirred well for about ten minutes. To this is added a solution of chloride of lime in which has been dissolved a little "crystallized salts of soda." " After the " materials have been one or two hours in the bath [called " the milk bath], they may be placed in hot water for about " a quarter of an hour, and then replaced in the bath for " one or two hours." The liquid drawn off from the above (called seconds) may be employed on a fresh quantity of pulp, and this liquor may be again used (called "thirds"). Fabrics of cotton may be bleached by subjecting the goods to progressive treatment from boiling water, "seconds," "soft soap," chloride of lime and soft soap, and "clear water." The coarsest linen cloths are treated successively with "clear water," "thirds," the "flour of barley or oats" dissolved in water, to which some " seconds" are added, "seconds," "soapy water," fresh "milk " bath" and clear water. For "hempen cloths," caustic potash ley may be substituted for the "soft soap ley." Any chloride remaining in the cloth at the end of the process may be "rendered " inert" by putting the goods into a vessel of water containing a small quantity of "proto-chloride of tin."

[Printed, 4*d.*]

A.D. 1856, December 2.—N° 2852.

BROOMAN, Richard Archibald.—(A communication from Lipman, Marc.)—"A chemical composition or agent to be employed in the dyeing of wools and woollens." First.—" I first " prepare stannic chloride (chlorure stannique) by mixing, in or " about the following proportions,—1¾ ounces of bay salt or " sea salt, 8¾ lbs. muriatic acid, 2¼ lbs. nitric, and by dissolving " tin in the liquid thus obtained, adding the metal a little at a

" time, in order that the solution may proceed slowly, and con-" tinue for at least a day."

Second.—The " composition of tartar " is prepared for use in dyeing as follows :—" Dissolve one part (by weight) of oxalic acid in " ten parts of hot water, and stir for half an hour. I next dissolve " one part of the stannic chloride, prepared as above described, in " ten parts of cold water, and stir for a quarter of an hour, then " add for every one part of the stannic chloride two parts of " sulphuric acid; stir again for about a quarter of an hour, and " when the two solutions are cold, or nearly so, I mix them " together, stir for about half an hour, and leave them to settle " for about twenty-four hours before using." One part of the " above composition of tartar " may be used in lieu of one part " tartaric acid ;" and seven parts of the composition in place of ten parts of " cream of tartar or ergol."

[Printed, 3*d.*]

A.D. 1856, December 3.—N° 2864.

GATTY, Frederick Albert.—" Improvements in the construc-" tion of filters or drainers." " These improved filters or drainers " are particularly applicable in the manufacture of garancine, but " they may be used for other purposes, and are made by preference " of wood and of a square shape." " The sides and bottom of the " filter or drainer are furnished with narrow slots made with a cir-" cular saw or otherwise. When the filters or drainers are made of " wood it is requisite to make the slots in a line with the grain of " the wood. These improved filters or drainers may be rendered " suitable for filtering different materials by increasing or dimin-" ishing the width of the slots, according to the fineness or " coarseness of the substances to be separated from the liquids. " In some cases the slots of these filters or drainers may be filled " with animal charcoal or other purifying material." These filters are " easily cleaned, by passing a suitable instrument through the " slots."

[Printed, 3*d.*]

A.D. 1856, December 5.—N° 2890.

KERDYK, Lodewyk Polak.—" Improvements in machinery or " apparatus for extracting coloring matters to be employed for the

" purposes of dyeing, or for other similar processes." "The " apparatus for effecting this purpose consists in a suitable arrange- " ment and construction of well-known machinery used for sepa- " rating liquids from solid matters by centrifugal force, namely, " an interior case or chamber, covered with wire-cloth and perfo- " rated plates, &c., and revolving at a high velocity, enclosed in " an interior chamber or case. The pulverized wood or roots, &c., " is placed in the internal chamber, and rotatory motion being " imparted thereto, water or any other solvent is introduced, being " driven or filtered out by centrifugal force through the sides of " the case, and the insoluble matter remaining behind is removed " when requisite. The liquid thus separated may be passed into the " dye vat and out through the machine again, and so on, as often " as necessary, until the colour is sufficiently extracted from the " roots, &c., employed.

"Secondly, the invention consists in the use of an arrangement " of the above-named apparatus, in combination with a centrifugal " disc pump, so applied or placed in connection with or within the " interior revolving case or chamber as to act as an auxilliary " power, in addition to the centrifugal power, to facilitate the " progress of the filtration or extraction of the coloring matter.

"And, lastly, in the general arrangement, combination, and " construction of the whole apparatus, as used or applied for " extracting coloring matters, the extract being made simul- " taneously and in combination with the process of dyeing, or to " be employed for the purposes of dyeing, or for other similar " purposes." The general arrangement of this apparatus may consist of a hydro-extractor, with an inner case which can be screwed out for the purpose of being emptied. On the centre or shaft of the extractor, which at one end is hollow, for the introduction of the liquid, is fixed a disc pump, which forces the liquid into the body of the extractor, and thence, with the assistance of the centrifugal force of the extractor, through the substance to be extracted, into a closed receptacle or chamber in which the extractor is wholly enclosed. From the upper part of this chamber a pipe may proceed, through which the liquor may pass into the dye beek. The return current may again be made to enter the apparatus through the hollow centre, which communicates with the disc pump.

[Printed, 10*d*.]

A.D. 1856, December 10.—N° 2927.

MACARTHUR, Alexander.—"Improvements in boiling, "bleaching, washing, or cleansing fibrous materials." These improvements consist, first, in "the application and use, for boiling, "&c., fibrous materials, of a rotating vessel formed with chambers, "communicating, each on one side, with intermediate spaces open "at their outer ends, and contrived to admit water or liquid to "each chamber in succession, and allow it to issue thence as the "vessel rotates with its lower part immersed in the water or liquid." Second, in working the above rotating chamber "in an open "trough or completely enclosed in an external vessel or case fitted "with contrivances for supplying liquids, steam or gaseous matters. "Third, in the system or mode of constructing a single apparatus "for the treatment of fibrous materials, so that the several opera- "tions of boiling, washing, and bleaching can, in succession, be "carried on in it." Fourth, "in bleaching fibrous materials by "the application to them of gaseous matters, such as chlorine, "alone or combined with other gases, in a closed vessel or case, "the materials being carried in an inner rotating vessel in cham- "bers accessible to the gaseous matters." This invention may be carried out by means of an apparatus similar to a dash wheel, revolving in an outer box or case. The wheel is provided with the means for admitting steam into it, and its periphery is perforated with holes, to admit the liquid or gas contained in the casing. The casing may be made air-tight, so that it will resist the pressure either of the steam or of a vacuum. The various liquids and agents required during the process of bleaching may be admitted successively into the casing and wheel, without removing the material under operation.

[Printed, 9*d.*]

A.D. 1856, December 12.—N° 2957.

PEASE, Henry, and RICHARDSON, Thomas.—"Improve- "ments in the manufacture of compounds of alumina." "Com- "mon salt or muriate of potash is mixed with china clay or other "suitable aluminous material, and sulphuric acid is added, to "convert both the alumina and the muriate into sulphates. The "muriatic acid set free is evaporated off, and the residue may be "used for many of the purposes for which alum is now used, or

" alum may be prepared from it by lixiviating with water and " crystallizing in the ordinary manner." The Patentees " prefer " to use the purest forms of aluminous minerals, such as china or " porcelain clay or cryolite." " We take, for example, 4 cwt. of " an ordinary china clay containing 45 per cent. of alumina, mix " it with 1 cwt. of common salt, and calcine the mixture for about " an hour after the mass has become red hot. When cold, we " sift out the coarse and grind it to fine powder. The fine calcined " mass is then thrown into an ordinary reverberatory furnace, " when we run in 7 cwt. of sulphuric acid of about 1·640 specific " gravity. The whole mass is carefully agitated from time to " time until the escape of gas has ceased, by which time the mass " becomes a dry powder. This product is removed from the " furnace and exposed to the action of the atmosphere for a few " days, by which it is improved in appearance. The heat em- " ployed should not much exceed 300° to 400° Fahrenheit."

Sulphates of the alkalies may be employed, in which case a corresponding reduction in the sulphuric acid is to be made.

Modifications of the above process will produce crystallized alum. Alum may also be produced by " roasting the alum shale in heaps," to which may be added " from ½ per cent. and upwards of muriate " potash, previous to the formation of the heap, and with or with- " out the addition of natural or factitious sulphurets of iron."

[Printed, 3*d*.]

A.D. 1856, December 24.—N° 3054.

TAYLOR, William.—" Improvements in producing various " ornamental effects upon fabrics, paper, and other surfaces." These improvements consist, first, in attaching to the surface of two printing rollers, rotating together and in exact unison, cut out figures and their counterparts, which are suitably supplied with colour by two sets of furnishing and transmitting rollers. The material to be printed is caused to pass between the rollers, and is thereby impressed on both sides. The figures may be cut out of prepared india-rubber, gutta percha, or of any other suitable elastic material.

Secondly, consists in employing lace or other similar open fabric to print from. For this purpose the lace may be suitably stretched and passed between rollers furnished with a regulated quantity of colour. The lace, &c., so coloured on both sides, is then passed down between a pair of pressure rollers, over each of which is passed a fabric or paper to be ornamented.

Thirdly, consists in interposing between the two printing cylinders a bowl or "blanket pressure roller." The fabric to be printed is caused to pass round the bowl and between the rollers, and is thereby printed in two distinct colours.

Fourthly, in causing one fabric, such as lace, to adhere by moisture and pressure to another fabric or material, such as paper, and passing the united web between furnishing colour rollers and the blanket pressure roller. Such combined fabric may be further coated with powder colour, flock, leaf metals, &c., or the two fabrics may be separated when sufficiently dried.

Fifthly, in coating, silvering, or gilding of threads of cotton, &c., by passing them in a regulated continuous manner between rollers which supply the varnish, and between other rollers covered with flannel and rotating in a box of the required powder, and then between revolving brushes; or the metal, in the shape of leaf, may be placed on the surface of other webs of cloth or paper, which are caused to pass between pressure rollers along with and in contact with the threads.

Sixthly, consists in printing suitable colours on thin sliced wood or scaleboard "cut from the round," by means of zinc rollers, engraved or etched, in order to produce the resemblance of veining or graining.

Seventhly, consists in causing threads, arranged after the manner of tapes, to adhere to the surface of paper or other fabric by means of gelatine, then coating the whole with varnish and gilding or coating it with metal leaf, as before described. The threads may be reeled off the paper, &c., and applied for spirally coating other threads.

Eighthly, consists in imbedding lace or other fabric, by damping, in paper, gutta percha, &c., coating it with varnish as before, but on one side only, and then separating them and gilding the lace on the varnished side, in the manner before described.

Lastly, consists in laying lace dressed in gelatine on a web of dry flannel extended on a table and coated with leaf metals, then placing over it another web of flannel, damped with hot water, and passing the whole through a pair of pressure rollers.

[Printed, 2*s*.]

A.D. 1856, December 24.—N° 3055.

BARRACLOUGH, James Samson.—"Improvements in the "means, machinery, or apparatus used for grinding dye-wares." This invention relates to "machinery or apparatus used for grinding dye-wares known as head-stones, and consists in the application thereto, and the use in connection therewith, of archimedean "screws, for removing and conducting the ground and partly "ground wares from the bed stone of the grinding apparatus to "the sieve, and also for returning the grips, or those portions of "wares that do not pass through the sieve, back to the grinding "apparatus, to be again operated upon, thus constituting the "grinding apparatus self-acting, whereby I am enabled to dispense "with the services of an attendant for the said purpose."

The scraper attached to the rotating edge stones, scrapes at each revolution some of the ground material, through an opening in the bed, into a trough, in which a spiral screw is caused to rotate. The ground material is carried forward by the screw and deposited on the sieve. Another trough, placed in an inclined position, receives the grips from the sieve, which are carried up and returned to the bed of the grinding apparatus by means of a second screw.

[Printed, 9*d*.]

A.D. 1856, December 26.—N° 3060.

ROSTAING, Charles Sylvester.—"Improvements in pre-"paring and combining metallic substances for the production of "colours, and in manufacturing the same."

The Patentee claims the "exclusive use of colors manufactured "from oxide of zinc obtained from blende or other mineral, by "treating such blende or other mineral in the manner and by the "apparatus," as described in the specification. Blend ground to a very fine powder is "placed in a suitable receptacle and sprinkled "with one-hundreth part of its weight of azotic acid or sulphuric "acid, diluted by from twice to four times its weight of water, "the whole being carefully and exactly mixed; or the sulphate of "zinc of commerce may be advantageously substituted for the "acids, added in the proportion of four pounds to every one hun-"dred pounds weight of brute blende, and then ground to powder "in a mill. These mixtures or compositions are then placed in the

" reverberatory furnace (previously heated) and spread upon its " bottom in a layer of about two inches thick." The heat is increased until it becomes of a " white heat," and the whole of the " sulphurous acid " disengaged, " and it is kept in that state for " half an hour, in order to develop the color in its greatest intensity." " Sulphate of alumina " may be substituted for the acids, and sulphate of zinc, which will vary the shades obtained. The resulting product is ground in a mill with " river water until reduced " to an impalpable powder." Various colours may be produced by treating the oxide of zinc so formed with salts of " iron," " manganese," " cobalt," " nickel," " copper," " chronium," " iranium," or " aluminium;" or by heating the blende, as before, with the addition of such substances as " sulphate of iron," " native " bisulphuret of iron," " sulphate of alumina," " manganese," " cobalt," " nickel," " copper," " chronium," " uranium," " lime," &c. Deep and vivid shades of every description may thus be obtained, and on being combined with albumen, or otherwise, may be used for printing on fabrics, carpets, and papers; and are also " applicable to painting in oils, water colours, fresco painting, a " l'aquarelle, wax, chloride of zinc, size, or glue, caseate of lime, " silicate of soda and of potassa."

Textile fabrics may be printed in the following manner:—" The " colors are mixed with a solution of chloride of zinc, of from " twenty-five to thirty degrees ' Beaumé,' adding thereto one and " a half per cent. in weight of sal ammoniac or of borax, that the " paste may remain a long while in a liquid state. The desired " pattern or design is then printed on the cloth or paper and " allowed to dry. Colors thus employed resist the action of " water, and are insoluble; but if they are much rubbed together " when wet the color comes off by degrees." The colors may also be mixed with a drying oil, Marseilles soap, and hydrate of alumina, and when printed will remain supple and pliable.

[Printed, 1*s*.]

A.D. 1856, December 26.—N° 3062.

MACDONALD, DAVID.—" Improvements in washing, bleaching, cleansing, and preparing textile fabrics and materials." " The apparatus in which the operations are carried on, consists of " a stationary semi-cylindrical chamber, or a chamber of a shape " more or less approximating thereto, placed with its flat or straight

" portion upwards, and having within it an inverted moveable " chamber or working vessel. This working vessel resembles an " inverted boat with its two ends cut square off, and it fits closely " in between the two opposite flat sides of the stationary chamber, " and with its bottom edges in close contact with the concave " bottom surface of that chamber. A horizontal spindle or shaft " occupying the position of the centre, from which the cylindrical bottom of the stationary chamber may be supposed to be " struck out, serves as the working centre of the working vessel, " so that as the working vessel is moved from side to side, it " follows the curve of the stationary chamber's bottom. The required vibratory or oscillatory action is given to the working " vessel by a crank or other mover." "The fabrics, or materials " to be treated, are placed so as to rest upon the concave bottom " of the stationary chamber," "and beneath the working vessel." " The stationary chamber is kept supplied with soap and water " [steam], and whatever chemical matters may be required for " acting upon the goods placed in it." The internal working vessel may be constructed solid or perforated with holes, or of float boards, or open spars; and the outer case may be covered so as to resist the pressure of steam.

The Patentee also claims "the application and use of a current " or currents of cold or heated air to fabrics or materials undergoing the operations of bleaching or scouring, for the purpose of " increasing the energy and activity of the chemical agents employed in such processes." The air is caused to "impinge " upon the goods or materials in the bleaching chamber," during the process or operation of "souring."

[Printed, 7*d*.]

A.D. 1856, December 26.—N° 3074.

CLARK, William.—(A communication.)—"Improvements in " air and waterproof coatings, and in their application." These improvements consist, first, in coating "moulded plasters, porous " stones, and organic pervious alterable substances," such as paper, " fabrics," cordage, sails, wood of ships, railway sleepers, &c., with a compound of "gelatine and tannin," for the purpose of rendering them "impervious to air and water," and less liable to decay. The substance to be operated upon is coated with gelatine, isinglass, glue, or other glutinous matters, and afterwards soaked in a solution of tannin, or of matters containing tannic acid. Fabrics may be "dressed" with the above compound. Dyed colours may be fixed by it on fabrics, and their elasticity may be restored by washing and ironing; and "pigments" may be fixed on fabrics by first printing on a mixture of them (ultramarine for example), with gelatine, albumen, or casein, and afterwards, when dried, immersing the printed fabric in a solution of tanning matter; or mordants may be diluted with gelatine, and fixed with tannin, when rich and more solid colours may be obtained on dyeing. Colours in distemper may also be fixed by this process. The Patentee also proposes to "render size colours insoluble, by " covering them with a thin layer of gelatine and silica of potash " or soda." The Patentee claims the application of artificial sulphates of baryta and strontian, when mixed with gelatinous solutions, to obtain a ground in the tanned paintings.

"Lastly, paper pulp penetrated with gelatine, will give, by means " of pressure, mouldings and objects of ornament, which are con- " solidated by immersion in tanning solutions." In some cases arsenious acid or arsenite of potash may be added to the gelatine for the better preservation of the article treated.

[Printed, 4*d*.]

1857.

A.D. 1857, January 13.—N° 111.

VERDEIL, FRANÇOIS AUGUSTE, and MICHEL, EMOND.— " Improvements in obtaining extracts from madder for dyeing and " printing." This invention "consists in crushing the madder " root, and extracting it with an alkaline liquid, from which the " coloring matter is afterwards precipitated by an acid. The " crude coloring matter thus obtained is dissolved in alcohol or " wood spirit, and the solution is distilled to again separate the " alcohol or wood spirit; the pure coloring matter remains in the " retort."

"In order to dye a fabric with this extract, it is only necessary "to dissolve it in water, and to immerse in the solution the fabric "to be dyed, the fabric having been previously mordanted in the "ordinary way, by which process the dyeing is so quickly made, "that one or two minutes hardly are wanted. When the extract "is to be used for printing, it is dissolved in water, and precipitated with acid. The precipitate is dried, mixed with a suitable "vehicle, and the fabric is printed with it in the ordinary way."

[Printed, 3*d*.]

A.D. 1857, January 28.—N° 242.

HUNTER, Colin.—(Provisional Protection only.) "Improvements in bleaching or cleansing textile fabrics or materials and "materials used for making paper." "The invention consists "essentially in employing a current or currents of the electric "fluid, generated or excited in any convenient manner by any "suitable apparatus in combination with the chemical agents used "in the bleaching process in such a manner as to promote, excite, "or hasten the chemical action of such agents upon each other or "upon the colouring matters in the materials which are being "bleached."

"According to one modification the electric fluid is made to act "in a dash wheel on rotating chamber containing the materials "to be bleached or cleansed, carbonic acid gas and chlorine being "likewise introduced into such wheel or chamber, and steam also, "if found desirable."

[Printed, 3*d*.]

A.D. 1857, February 3.—N° 314.

WHITE, George.—(A communication from Lanth, Charles.) —"Improvements in dyeing and printing textile fibres and "fabrics." "These improvements relate to the application of "murexide, or other colouring products derived from uric acid, "to the dyeing and printing of every description of fibrous materials and fabrics." The fixing of the murexide, &c. in the form of "metallic purpurates" on the fibrous materials, may be effected, firstly, "by passing the fibrous materials "through a proper mordant [for example a salt of mercury] and "afterwards through a solution of murexide, or other coloring matter derived from uric acid, such as alloxan, and others; or, secondly, by passing the fibrous materials through a suitable mordant [such as salts of lead, of zinc, of tin, or others] mixed with the solution of murexide," &c.; or thirdly, by passing fibrous materials through a solution of murexide, &c., and by fixing afterwards the murexide, &c. by means of a metallic salt [for example the "bioxyde" of mercury].

[Printed, 4d.]

A.D. 1857. February 11.—Nº 402.

KAY, Richard Dugdale.—"An improved method of using or applying a certain coloring matters, either singly or in combination with other coloring matter, to woven or felted fabrics, yarn, or threads, either in the white or dyed state." "These improvements refer to the process" for the application of the murexide, or other analogous substances obtained from uric acid." The mode of operation for one shade is as follows:—"I mix four pounds of nitrate of lead, one pound of murexide with one gallon of water: if this mixture is to be applied by block or machinery it must be thickened with starch, gum, or other substitute in ordinary use. The material having been printed with the coloring matter, is allowed to hang a short time, or may be put through the fixing operation immediately. The operation of fixing or developing the colors may be performed thus:—The material is put on frames furnished with hooks, as in the operation of indigo dyeing, the said frames being placed in a suitable vessel supplied with ammoniacal gas; or instead of the said frames rollers may be used, over which the material traverses through the ammoniacal gas. This operation completed, I immerse the pieces in water; they may then be dried and kept in this state. But to have a faster and more brilliant shade, it is preferable to change the metallic basis and replace the lead by mercury; to do which I put the pieces for about twenty minutes in a bath composed of a solution of bichloride of mercury and water, and then into a second bath containing an acetate acid of mercury, or a mixture of bichloride of mercury, acetate of soda, and acetic acid. As soon as the substitution of the mercury for the lead is completed in these baths, and that the desired shade is obtained, I wash well in water and

" finish as usual. The proportions of nitrate of lead and mur-" exide may be varied as circumstances and shades may require; " or the nitrate of lead may be replaced by any other metallic " salt in which murexide is soluble, and whose basis can form with " it (after fixing) a combination insoluble, or nearly so, such as " salt of zinc, bismuth, &c.; or in lieu of ammoniacal gas any " other means may be employed for fixing the color, as for in-" stance, the dust of alkalies, earths, or alkaline salts, as soda, " lime, &c., or a solution of ammonia in alcohol, turpentine, or " other equivalent solvent, or even a strong solution in water of " salts whose acid forms with the printed basis an insoluble com-" bination, as in the case of nitrate of lead, chlorides, sulphates, " silicates, &c." "The shade of the color may be altered by " mixing one or more of the said salts with other distinct coloring " matters and thereby give to this process an almost unlimited " variety of shades and applications. Uniform shades may also " be produced in the same manner, except that the printing of " the color is replaced by an immersion, or by an operation which " diffuses the coloring matters in a uniform manner over the " whole surface of the material. I also fix the mureixde alone or " in combination with a metallic basis by steam in the usual " manner for fixing steam colors, but to effect this I employ a " murexide free of all acid or other substance having the effect of " an acid, but in preference use the purpurates of alkaline metals, " such as the purpurates of soda, potash, barytes, &c., or metallic " purpurates dissolved in a metallic salt."

[Printed, 4*d*.]

A.D. 1857, February 21.—Nº 511.

BARBER, JOHN.—" Improvements in compound printing " mandrills." This invention relates to holding metal rollers employed in printing and embossing calico or other fabrics. "In-" stead of employing the usual taper shaft or maundrill for hold-" ing the roller, I place it between two chucks, nuts, or circular " coned projections upon a strong parallel shaft or maundrill, with " a bearing at each end or on each chuck, the said bearing to be " parallel or otherwise, and fitting the inner circle of the roller at " its end, thereby affording additional support. The ends of the " rollers are are either plain, grooved, or indented, the same as in " my improvements for holding rollers for turning and engraving,

" so as to fit the chucks or nuts, one of which either forms part
" of the shaft, or is fastened to it in any suitable manner, and the
" other chuck or nut has a long barrel fitting the shaft, thus form-
" ing a complete bearing, which is bounded by a washer or washers,
" kept up to the end of the roller by means of a screw on the
" shaft and nut or thread in the interior of the boss of the pulley
" or toothed wheel which gives motion to the shaft and roller, the
" thread of the nut and screw being either right or left according
" to the course of the roller, the one being the reverse of the other,
" so as to cause a locking or tightening of the chucks, nuts, or
" cones against the ends of the roller, by the resistance of the
" work against the moving power, and also preventing the pos-
" sibility of slackening from expansion of the maundrill so long
" as the machine is in motion. I prevent the vibration or deflection
" in the centre of the roller by the force of the screw compressing
" and strengthening the centre of the tube or cylinder between
" the chucks; the roller as it becomes thinner, by repeated turn-
" ings off for new engravings, will be more strengthened in propor-
" tion by the force of the screw upon the chucks acting more
" upon the centre of the roller, and keeping it firm in the chucks,
" as if the roller and maundrill were one solid body, and working
" true upon its axis will require less lapping and driving power."
" These maundrills may when desired be filled with water or other
" fluid for the purpose of keeping the rollers cool in the color,
" and also the bearings of the maundrills. The roller loose on
" the maundril is placed in a box or trough containing water or
" other fluid, the chucks being left apart from the ends of the
" roller, or a little open, so that the fluid may enter. During the
" immersion the chucks are slightly screwed up to secure the
" fluid; the maundrill and roller are then removed and placed
" upon steps or supports upon the table which forms part of the
" trough; they are then firmly screwed up and placed in the
" machine." Through these appliances very thin rollers may be used.

[Printed, 1*s*. 6*d*.]

A.D. 1857, February 26.—N° 566.

BRUTON, CHARLES, senior, BRUTON, CHARLES, junior, BRUTON, FRANCIS JAMES, and BRUTON, SAMUEL ROGERS.—"An improved azure blue for domestic purposes." "We mix

" oxalic acid with prussian or chinese blue, in about equal quanti-
" ties if the prussian or chinese blue is of a good quality, but if
" of inferior quality, we add an additional quantity of oxalic acid
" in proportion to the quality of the said blue. To every four
" parts of this mixture we add about one part of water, which we
" heat or boil for a short time, and when cold, dry it in the
" atmosphere or by artificial means, and then pulverize it ready
" for sale as a powder; or we dilute it with water, and sell it in a
" liquid state."

[Printed, 3*d.*]

A.D. 1857, February 27.—N° 578.

MUCKLOW, Edward.—(Provisional Protection only.) "An
" improvement in the manufacture of 'alizarine.'" "This im-
" provement in the manufacture of 'alizarine' consists in boiling
" the well known product of madder called 'garancine' in an
" alkaline solution, in place of employing high pressure steam in
" the treatment of garancine in such manufacture."

[Printed, 3*d.*]

A.D. 1857, February 28.—N° 597.

JENNENS, Theodore Hyla.—"A new or improved manufac-
" ture of rollers or cylinders for printing fabrics." This is effected
by "substituting or forming the bodies of such rollers or cylin-
" ders of papier maché, paper pulp, or other such like suitable
" fibrous material, either by pressing or forming them in suitable
" moulds, or by winding suitable paper coated with paste, or other
" suitably adhesive material, around a parallel or slightly tapered
" mandrill, and which mandrill I purpose to be of the size of the
" spindle on which such roller or cylinder would be placed when
" required in printing fabrics. And in the process of wrapping
" around such paper, all surplus or excess of paste or other ad-
" hesive material must be pressed out, and the paper wrapped
" around one course on the other as tight and closely as possible,
" taking care to dry and stove the so formed cylinder during this
" process at every third or fourth layer of paper, according to its
" thickness or to the amount of moisture absorbed in the process
" of making up; and when this paper body is of sufficient size,
" and thoroughly dry and hardened by oiling and stoving, in the

“ usual way in which papier maché goods are treated, or otherwise
“ as shall be found most convenient, I draw over it a tube of
“ copper or copper alloy of from three-eighths to one-half of an
“ inch in thickness, more or less as required, the internal diameter
“ of which must be of the full size of the paper cylinder or body
“ so as to admit of being readily placed over it; in this state the
“ body or cylinder, with its copper covering, is placed on a suit-
“ able mandrill, and is pulled through a hole or holes at a com-
“ mon draw-bench, which so contracts the circumference of the
“ copper casing, that it impinges or compresses the paper body
“ into a hard, compact, and fixed state around the mandrill on
“ which it has been drawn, and is now in a state to be cut off to
“ its proper length and turned on its surface and removed from
“ the mandrill, for the purpose of being engraved.”

[Printed, 6*d.*]

A.D. 1857, March 7.—N° 664.

PAGNERRE, Eleonore Augustin.—(Provisional Protection only.) “A machine for counting, cutting, and inserting wire in
“ blocks of wood, for the purpose of printing and stamping on linen,
“ calico, silk, cloth, and paper, and for all printing purposes.”
“ The machine is two feet high and six inches broad, and is
“ put on a table, to which it is screwed; under the table is a
“ foot pedal, which communicates with the upper part of the
“ machine by a lever, which is placed above a reel, upon which
“ wire is rolled, and then the wire, by means of pliers and six
“ springs, two of which are placed horizontally, two perpendicu-
“ larly, and two in an inclined plane, compels the wire to enter
“ into a tube, which traverses the whole of the machine to the
“ bottom, and there the wire is forced into the block, which the
“ workman weaves according to the design; then by the move-
“ ment of the pedal and action of the two inclined springs the
“ wires are cut by a pair of flat scissors according to the height
“ of the block. Between the reel and the communicating pedal
“ is placed a small crank, close to which the wire is obliged to pass
“ into the tube, and then by its friction causes a hand, similar to
“ one in a watch, to indicate on a dial the number of turns which
“ the pedal performs, and which is equal to the number of wires
“ inserted in the blocks.”

[Printed, 3*d.*]

A.D. 1857, March 11.—N° 710.

COOPER, JAMES DAVIS. — (Provisional Protection only.) " Improvements in producing engraved surfaces for surface " printing." " For this purpose the drawing or design for the " surface to be produced is made on a block of wood, as for " ordinary wood engraving, but afterwards in place of cutting " away the white parts of the drawing or design, so as to leave " the lines standing in relief, the lines are cut away, so as to leave " the whites in relief. When this is done, the wood block is " coated with varnish, care being taken that the varnish does not " run into the engraved lines, and one coat of varnish is laid on " after another until the necessary thickness of coat is obtained; " afterwards the parts where the whites are broad are built up " with cement, so as further to increase the height of these " parts."

" The next process consists in taking an electrotype in the " ordinary way from the block thus prepared, which electrotype " is to be used as the printing surface; but before so using, it is " necessary to grind it down to an even face.

" Lastly, the electrotype is mounted, and it may then be used " for surface printing as an ordinary wooden block is used. I " am also able to prepare blocks for surface printing from line " engraved plates, and this I do by obtaining an electrotype or " reversed copy of the plate, that is to say, a plate with projections " to correspond with the depressions of the original plate; and I " grind away such electrotype or reversed copy of the original " plate, until a surface suitable for surface printing is obtained."

[Printed, 3*d*.]

A.D. 1857, March 17.—N° 752.

WITHNALL, JAMES. — (Provisional Protection only.) " Improvements in the manufacture of rollers or cylinders to be " employed for printing calico and other surfaces." This invention relates to the " novel application and use of iron in the well- " known state called ' malleable iron,' in contradistinction to the " use of ordinary cast iron, as heretofore employed in the manu- " facture of such printing rollers as are composed of two cylinders " combined one within the other, the inner one being of cast iron " and the outer one of copper or other surface for engraving. The

" improvement consists in forming such inner roller of ' malleable
" ' iron,' upon which the copper covering or engraving surface
" may be secured or united by soldering or any other suitable
" means."

[Printed, 8*d*.]

A.D. 1857, March 18.—N° 763.

WILKES, John, WILKES, Thomas, and WILKES, Gilbert.
—" A new or improved manufacture of rollers or cylinders for
" printing fabrics."

In order to carry this invention into effect, " we take a hollow
" cylinder of cast iron, and we place upon the said cast iron
" cylinder a hollow cylinder or tube of copper [or other suitable
" metal or alloy]. We subject the said copper cylinder, with its
" inner cylinder of cast iron, to a drawing process similar to that
" by which metallic tubes are drawn. By the said drawing
" process we elongate and reduce the diameter of the said copper
" cylinder, and fix the said copper cylinder firmly upon the said
" cast-iron cylinder." Longitudinal or transverse grooves may be formed on the cast-iron cylinder, to attach the copper more firmly.

[Printed, 5*d*.]

A.D. 1857, March 21.—N° 793.

BANKS, William, and BANKS, John.—" Improvements in
" machinery or apparatus to be employed for washing, scouring,
" or bleaching cotton, linen, and other textile fabrics."

In effecting these improvements the " goods are laid or plaited
" in a chamber (having a large man-hole or aperture in the top
" for the purpose), which is caused to turn round slowly whilst
" being filled, and when full the apperture is closed and the air
" exhausted from the chamber by means of pumps; when a suf-
" ficient vacuum has been thus obtained, the water or bleaching
" liquor, &c., is supplied to the chamber, thereby thoroughly
" saturating the goods. During the process of saturation, the
" chamber is caused to move more rapidly, and with a horizontal
" reciprocating motion, so as to distribute the liquid more per-
" fectly through and amongst the goods." An agitator so connected as to form a false bottom to the chamber, and which

carries the goods, is placed within it, and caused to revolve during the process of bleaching, by means of reversing gearing, first in one direction and then in the other.

[Printed, 10*d.*]

A.D. 1857, March 31.—N° 890.

WRIGHT, Josiah.—(A communication.)—(Provisional Protection only.) " An improved method of bleaching straw plait and " straw." " First soak the fibre or plait in a bath saturated with " soda of commerce and chloride of lime. The proportions should " be two of soda to one of chloride of lime by weight. The soaking " should continue for from about 24 to 72 hours. When removed " from the bath the plait or fibre is rinced in cold water and dried. " After being dry the plait or fibre is exposed in a closed chamber " to the fumes of sulphur, or to sulphurous acid gas, for from " about one to six hours."

[Printed, 3*d.*]

A.D. 1857, April 1.—N° 896.

BURTON, William Samuel.—(Provisional Protection only.) " A new or improved manufacture of rollers or cylinders for " printing fabrics." In the interior of a hollow cylinder or tube of copper or other suitable metal or alloy is placed " an iron or " other tube, the last-mentioned tube being situated concentric " with the former. The two concentric tubes are secured together " by annular ends, which close up the annular space between the " two tubes. The said ends may be fixed by soldering or other- " wise. Between the said tubes a solid or liquid support may be " introduced, that is to say, the annular space between the tubes " may be filled by any suitable solid matter," " liquid," or " air.

[Printed, 3*d.*]

A.D. 1857, April 2.—N° 919.

BROOMAN, Richard Archibald.—(A communication from Bouchet, Henri.) — (Provisional Protection only.) " Improve- " ments in treating and bleaching fibrous vegetable substances " and in machinery employed therein." The plants or fibres to be acted upon are first " retted " by hot caustic [illegible] printing [illegible] with [illegible] rollers [illegible] a [illegible] in the [illegible] immersed in a [illegible] the [illegible] and [illegible] in [illegible] and [illegible] printing [illegible] the [illegible] supports at [illegible] and [illegible] raised up by means of a [illegible]

A.D. 1857, April 4.—No. [illegible]

[illegible] (Provisional Protection only.) "[illegible] improvements in apparatus for steaming or finishing [illegible] apparatus consists of a hollow cylinder or [illegible] and open at [illegible] a piston or plunger [illegible] the said cylinder [illegible] The said piston being [illegible] by any suitable mechanism. The said piston [illegible] a frame, in which a [illegible] perforated metallic [illegible] is supported. In using this apparatus, the piston is forced to the [illegible] and the liquid [illegible] the said piston [illegible] the said piston is then [illegible] the cylinder, when a vacuum or partial vacuum is [illegible] the said piston. The atmospheric pressure [illegible] through the piston [illegible] and thereby effects the [illegible] of the said [illegible]"

[illegible]

A.D. 1857, April 4.—No. 956.

[illegible], JOHN JAMES. (Provisional Protection only.) "Improvements in rollers or cylinders for printing fabrics." A roller [illegible] constructed according to this invention consists "of

" a tube or hollow cylinder of wrought or cast iron, and a " tube or hollow cylinder of copper or alloy of copper fitting " upon the said iron cylinder, but capable of being removed " therefrom, so that another copper cylinder may be used with " the said iron cylinder." The iron cylinder fits on the ordinary maundril. The iron and copper cylinders have ribs and corresponding grooves formed on their surfaces to prevent them turning on each other.

[Printed, 3*d.*]

A.D. 1857, April 16.—N° 1076.

WEILD, William.—" Improved arrangements for printing, dye- " ing, coloring, or staining, and otherwise preparing yarns or " threads for various manufacturing purposes." These improvements consist, firstly, " in causing a fixed and uniform weight to " act upon each thread between the bobbin or swift from which " the thread is withdrawn, and the drum or swift upon which it is " wound." Secondly, " in fixing clamps, pincers, or straight " edges [of any suitable description], upon the threads [while in " the form of hanks, according to the required design] previous to " the application of the colour at those points where one colour " or shade of color is to commence and another is to terminate. " These clamps or pincers are left on the threads during the sub- " sequent steaming operation." When the hanks have had the clamps or pincers applied to them at the proper distances, they are removed to a table where the " colour is applied to the hank by " hand with a brush or other suitable instrument between each " division formed by the clamps, according to the design."

[Printed, 1*s.* 4*d.*]

A.D. 1857, April 16.—N° 1077.

HINDLE, Robert.—" Improvements in that apparatus used in " calico and other printing known as the 'seive.' " These improvements consist " in causing the 'sieve cloth' [more especially of the " class known as spring sieves] to rest on an even plain surface, " having channels cut in it to allow of the free circulation of the " colour to supply the sieve cloth, the narrow supporting surfaces " presenting no perceptible obstruction to the flow of the color to " those parts of the sieve cloth immediately in contact with "them," or the sieve may be supported by a "grid or grate." The liquor may be supplied underneath the sieve by means of an inverted bottle in the usual manner.

[Printed, 4d.]

A.D. 1857, April 20.—N° 1107.

MARTIN, John Cowdery.—"An improvement in the manu-"facture of paper." This invention relates, first, to an improvement for the prevention of "the creasing to which paper is liable "in the web or length during the process of rolling or glazing;" and, secondly, "in rolling and glazing a wide web of paper in its "passage from the drying cylinders to the cutting machine, by an "arrangement of short rolls." The creasing may be prevented by conducting the web of paper over a metallic surface before it enters the nip between the glazing rollers. The paper is caused to bind against the metallic surface by means of a sheet or covering of leather, cloth, &c., which lays on it. The metallic surface is suitably placed, that is to say, it may be bent round the glazing rollers, or it may be separate. The glazing by short rolls is effected by cutting the sheet of paper longitudinally and causing the divided parts to pass separately between sets of short rollers suitably placed.

[Printed, 10d.]

A.D. 1857, April 22.—N° 1129.

HIGGIN, James, and LIGHTFOOT, John.—(Provisional Protection only.) "An improved compound, and improvements in "the method of applying the same for the purpose of stiffening "fibrous or textile materials, the same being applicable to the "fixing of colouring matters or pigments."

This invention consists in "producing tough elastic insoluble "compounds of glue, glutinous, mucilaginous, albuminous, or "gummy substances, such as gluten, albumen, gum tragacanth, "carragheen moss, Iceland moss, linseed, mucilage, or mixtures "of these substances, with metallic oxides or salts, such compounds being either applied direct to fibrous materials, or by "applying first the solution of animal or vegetable substance to "fibrous material, and afterwards the solution of metallic oxide "or vice versa."

"Yarns, ropes, cloth, &c., prepared with the insoluble elastic "compound or compounds above-named, either by applying them "direct to the fibre or by forming the precipitate in the interior "of the fibre, are found to possess greater strength than before, "also greater power of fixing colouring matters when the so "prepared fibrous materials are dyed with various dye stuffs. We "also make use of the precipitate or compound above-named as a "medium for fixing insoluble pigments on cloth; and when we "use this part of our invention we mix the pigments with the "animal or vegetable substances, then apply to cloth, and after"wards pass the cloth through a solution of metallic salt, which "will coagulate the animal or vegetable substance without injuring "the pigment."

[Printed, 3*d.*]

A.D. 1857, April 24.—N° 1161.

BELLON, JEAN BAPTISTE.—(Provisional Protection only.) "Improvements in mordants for use in dyeing processes." The first mordant is composed by adding "sulphuric acid" and "oxalic acid" to nitro muriate of tin. "This mordant is ap"plicable instead or in the place of tartaric acid or cream of tartar "[or alum] as at present used" in wool dyeing. "Mordant "No. 2 is prepared by mixing nitric acid with water until a tem"perature from 45° to 59° F. is attained." This "mordant" may be used in the preparation of wool instead of "tartaric acid or "cream of tarter." "Mordant No. 3 is prepared by compound"ing sea salt, sulphate of zinc, hydrochloric acid, carbonate of "soda, and water." "Mordant No. 4 [to be used for dyeing "black] is obtained by grinding and mixing together sulphate of "iron, sulphate of copper, and tartaric acid, and heating the mix"ture thus obtained until the same is converted into the form of "a paste." To this paste is added nitrate of iron and nitric acid. "Mordant No. 5" consists in adding "sulphate of copper and "sulphate of iron" to a "decoction of campeachy wood." "To "be used for dyeing black at one operation."

[Printed, 3*d.*]

A.D. 1857, April 25.—N° 1176.

PICKSTONE, WILLIAM.—(A communication.)—"An improve"ment in preparing or manufacturing dyeing matter, peculiarly

" applicable to cotton and other vegetable fibres, and useful when " dyeing and printing other fibres and fabrics." This invention consists in "the application of the colouring matter ob- " tained from the wood and bark of a tree [reduced to dust, " chips, or cuttings], which grows in the Brazils, and probably " in other countries." The tree is "called Braûna in the pro- " vince, Minas Geraes in the Brazils, and possibly by other " names in other places, and the botanical name is melau oxylon " braûna." "This dyeing material has a great affinity for cot- " ton, with or without mordants, and the colors produced by " it in cotton are more permanent than those produced by the " dyeing materials heretofore employed for producing the same " and similar colors to those which it produces. The following " colors may be most advantageously produced by its use, namely, " browns, drabs, slates, salmon, buffs, fawns, and black, and the " light colors so dyed are more permanent than those produced by " any other dye."

[Printed, 3*d*.]

A.D. 1857, April 28.—N° 1191.

WITHNALL, JAMES.—(Provisional Protection only.) "Im- " provements in the manufacture of rollers or cylinders to be " employed for printing calico and other surfaces." These improvements consist in forming an "inner roller, of that de- " scription or quality of iron called 'homogeneous metal' [iron " converted into steel by a chemical process], upon which the " copper covering or engraving surface may be secured or united " by soldering or any other suitable means," "homogeneous " metal being lighter and more durable than malleable iron."

[Printed, 3*d*.]

A.D. 1857, April 29.—N° 1210.

JOHNSON, JOHN HENRY.—(A communication from Lemettais, Poe Edouard, aud Boniere, Michel, the younger.)—" Improve- " ments in apparatus for distilling, applicable also to the extraction " of oils, coloring matters, and essences, and to the purification " of gums." "This improved distillatory apparatus, as at present " constructed, consists of two external cast-iron chambers, each " containing an inner cylindrical closed chamber, in which latter " the process is carried on."

"The matters under treatment are contained within a sheet-" metal casing fitted with a perforated top and bottom, the whole " being placed inside the upper one of the two inner chambers, " herein-before referred to, one chamber being placed at a higher " level than the other. A volatile solvent, such as sulphuret of " carbon, ether, chloroform, benzoine, turpentine, or any chemical " substance possessing similar properties, contained in a suitable " reservoir, is now brought to bear upon the matters under treatment, for the purpose of extracting therefrom oils or essences, " [or colouring matter], according to the nature of the operation. " The matters are heated during the process by the admission of " steam to the outer chambers, which surround the inner ones, " and the oil or other extract passes off with the solvent to the " lower chamber, which is also heated by steam, when the solvent " is volatilized, and passes up by a pipe to an overhead serpentine " contained in a cistern of cold water, for the purpose of being " condensed, and again employed, the condensed solvent returning to the original supply reservoir. A pipe also leads from the " first chamber to the serpentine, to carry off and condense any " of the volatilized solvent which may arise therefrom."

"The extraction having been completed, the process of distillation is carried on simultaneously in both chambers, by the " action of the highly heated steam, as before described.

" A third chamber is now brought into operation, such chamber " being at about mid-level between the other two before referred " to, and having an inclined partition or false bottom fitted inside " it, which divides it into an upper and lower chamber. Steam " is admitted into both these chambers; and when the air has " been thereby completely expelled, the air cocks are closed, and a " regulated jet of cold water is introduced into the upper chamber, " such chamber communicating, by means of a side pipe, with the " lower chamber, so that on the condensation of the steam a vacuum will be formed, the water from the jet and condensed " steam running along the inclined bottom to the said pipe, " which conducts it to the bottom chamber, leaving the upper " chamber perfectly void both of air and water. The vapor " from the other two chambers before mentioned, are now directed " by suitable pipes into this vacuum, and are condensed therein " by the jet, which is re-admitted."

[Printed, 11*d*.]

A.D. 1857, April 30.—N° 1215.

BARCROFT, Barnard.—“Improvements in dyeing and printing.” These improvements consists of a “chemical mixture to be used in the place of and as a substitute for tartaric acid in producing blues, and reducing the shades of pink in dyeing and printing, and may be produced by first mixing fourteen quarts of sulphuric acid of the specific gravity, 170° Twaddell, with twelve quarts of cold water, allowing it to stand till cold. I then take a large vessel and place it in a water bath, and pour into the said vessel twenty quarts of boiling water, and mix therewith forty-eight pounds of muriate of ammonium, and six pounds of white arsenic, allowing the whole to boil till the solid portions are dissolved, after which the solution is allowed to cool down to about 70° Fahrenheit. I then add the first mixture, and allow the whole to stand till cold, after which I add three quarts of oxymuriate of tin of the specific gravity 120° Twaddell; in a few days it will be ready for use.”

[Printed, 3*d.*]

A.D. 1857, May 7.—N° 1287.

ZIEGLER, Ernst.—“A substitute for animal charcoal, applicable also as a coloring matter.” This invention consists “in manufacturing a substitute for animal charcoal from clay,” having “the property of attracting and retaining with a certain power dissolved substances, such as paint, slimy matters,” and for “clarifying purposes.” “The clay [employed] should be as free as possible from extraneous matter, such as lime, magnesia, sulphur, oxide of iron, manganese, or all organic substances that give off ashes when burnt,” “and should contain but little quartz.” The clay is to be intimately mixed with such fluid substances as “glue,” “oils,” “rosin,” “gum,” “treacle,” “blood,” or by preference with “tar,” then made into thin cakes and gently dried. “After drying the cakes, they should then undergo the process of carbonization, which may be effected in ovens, in the same manner as at present practised for carbonizing bones, in air-tight pots or retorts.” A temperature of “from 25 to 32 degrees Wedgwood” is preferred. Modifications of the above process may be effected by adding to the tar, &c., before its amalgamation with the clay, from 10 to 20 per cent. of salt, potash, soda, alum, or lime dissolved in water. After burning, these substances may be removed by "water and acids." "The dusty refuse resulting from the grinding process may be "employed as black colouring matter in the manufacture of "blacking for boots and shoes."

[Printed, 4*d*.]

A.D. 1857, May 7.—N° 1291.

MORRISON, Duncan.—"A new or improved manufacture of "rollers or cylinders for printing fabrics." This invention consists "in making the said rollers or cylinders mainly of cast iron "or malleable or wrought iron, and afterwards coating the same "with a layer or coating of copper, the said coating with copper "being effected by any of the well-known electro-metallurgic pro-"cesses, whereby copper may be reduced from solutions of its "compounds upon a surface of iron." "I cast or otherwise "form a cylinder of iron," "having a nib in its interior for the "purpose of connecting it with the axis on which it is used," "and I make a series of V or other shaped slots on the exterior." These slots are filled up with deposited copper first, by stopping out with varnish the other parts; the varnish is then removed, and the cylindrical surface of the roller is then coated by deposition to the required thickness. The iron roller may be without slots, "in which case I fuse brass or other alloy of copper upon "the surface of the cylinder, and deposit a stratum or layer of "copper upon the brass coating."

[Printed, 5*d*.]

A.D. 1857, May 11.—N° 1324.

MUCKLOW, John Davies.—"Improvements in the manufac-"ture of rollers or cylinders to be employed for printing calico "and other surfaces." These improvements consist in making "the printing roller or cylinder of iron [in any state, or of any "other inferior metal] or of alloys, which may either be made "hollow, and used upon a mandril in the printing machine, or "may, if preferred, be made solid throughout, and used without "the mandril." "Upon the surface of this iron or composition "cylinder I engrave or otherwise produce the pattern or design to "be printed, and afterwards coat or cover the engraved and "outer surface of the roller or cylinder with a thin film of "[illegible] [illegible] wax, or any other suitable [illegible], or mixture of "[illegible], in order to prevent any [illegible] or [illegible] effect of "[illegible] or other [illegible] occurring in the process of [illegible]. The "[illegible] [illegible] is effected by the [illegible] of the four "[illegible] [illegible] [illegible] rollers or [illegible] by the "[illegible] [illegible] [illegible] by means of [illegible] "or [illegible] [illegible]."

[illegible]

[illegible] May [illegible]—[illegible]

[illegible] [illegible] [illegible].—A communication.—"Improvements in machinery or apparatus for printing woven or felted "fabrics." This invention relates to an apparatus for applying "colouring matter, mordants, or resists, to woven or felted fabrics of "all kinds in the white state, or printed state," for the purpose of producing stripes, waved or otherwise. To effect this a series of V-shaped [illegible] [illegible] are arranged side by side in a row, "which "[illegible] [illegible] [illegible] a frame or support of the same form, so that "they [illegible] [illegible] [illegible] sufficiently [illegible] to be moved in a lateral "direction [illegible] by means of a rack and pinion." One side of each [illegible] [illegible] [illegible] [illegible] still [illegible] by means of a [illegible] [illegible], so that the dimensions of each box may be [illegible]. "[illegible] the bottom edge of the boxes are made very fine "[illegible] [illegible] [illegible] to allow the outward flow of the "[illegible] [illegible] [illegible], varying in breadth and number "[illegible] [illegible] the design." "The range of colour boxes being "placed upon a frame [illegible] a convenient working height from the "floor [illegible] [illegible] is caused to pass in a state of tension under and "in contact with the edges bottoms of the boxes (having the "[illegible] on them), which are supplied with colour by inverted bottles "suspended over them, or by other convenient means;" it is then immediately dried by passing it over a brass steam cylinder, and steam chests. Stripes may thus be readily fitted in to a pattern previously printed on the cloth, by arranging the boxes properly and applying to them suitable pointers to act as guides; and by applying an excentric motion to the boxes waved or diagonal [illegible] may be printed.

[illegible]ted, 2d.]

A.D. 1857, May 15.—N° 1380.

MARRIOTT, WILLIAM, and SUGDEN, DAVID.—(Provisional Protection only.) "Improvements in heating press plates for "pressing woollen, worsted, cotton, silk, or other fabrics, paper, "and other articles." "Our plan of heating is by means of "superheated steam passed into a steam chest containing the "plates to be heated."

[Printed, 3*d*.]

A.D. 1857, May 16.—N° 1390.

COWPER, CHARLES.—(A communication from Mitscherlich, Ferdinand.)—"Improvements in preparing solutions and ex"tracts of the colouring matter of madder and other tinctorial "substances for dyeing and printing." The Patentee claims the "preparing solutions and extracts of the coloring mat"ter of madder and other tinctorial substances" "by means "of the alkaline phosphates and arseniates." Madder or other tinctorial substances such as "flower of madder," "garancine," "garanceux," "alizarine," impure extracts of madder, spent madder, "munjeet," "wild madder," or "bedstraw" being purified by washing, by acids, or otherwise "is mixed with a quantity of hot "water equal to from ten to twenty times its "weight, considered in a dry state, and the mixture is well "stirred. The last traces of acids, if any was employed before, "are then neutralized by a small quantity of caustic alkali or "alkaline carbonate. Phosphate of soda or other alkaline "phosphate, calcined or not, or an alkaline arseniate, is then "added, in quantity equal to from one to three per cent. of the "weight of the water employed. The coloring matter is thus "dissolved. The mixture is well stirred, and steam is passed "through it, and the whole is then filtered." The solution of coloring matter thus obtained may be concentrated by evaporation or through precipitation by means of alumina, tin, iron, or a suitable acid or salt. The coloring matter may be purified by means of alcohol or wood spirit.

[Printed, 3*d*.]

A.D. 1857, May 20.—N° 1424.

JAKENS, JOSEPH.—"Improvements applicable to printing and "dyeing woven fabrics and fibrous materials." This invention relates to a material "that may be used" as a substitute for the "acetate or other salts of iron now employed as mordants." "I "take the refuse of the vitriol manufacture [when that substance "is obtained from pyrites], which refuse is composed of or "contains sulphuret of iron; this I break into fragments and "digest in a stone vessel with muriatic acid of about the strength "of thirty to thirty-four Twaddell; I allow the operation to "continue for five or six hours, and during that time apply heat "by blowing steam into the mixture, or by external application. "The liquor is then drawn off, and as this probably consists of a "mixture of proto-chloride and perchloride of iron, I pass chlorine gas through in order to raise it to the higher chloride." "Should the muriatic acid contain sulphuric acid, I add bleaching liquor (chloride of lime). If the mordant be intended for "use in printing, I sometimes find it desirable to add thereto "pyroligneous acid; the exact quantity does not appear to be "material, but if the iron be at twenty-eight Twaddell it may be "reduced by the pyroligneous acid at twenty-four."

[Printed, 3*d*.]

A.D. 1857, May 20.—N° 1427.

CLARK, WILLIAM.—(A communication.)—"Improvements in "the preparation of the colouring matter called murexide." The process may consist, first, in submitting "alloxantine, in a powdered "state or in crystals, to contact with gaseous ammonia. It is according to the concentration of the ammoniacal gas employed that "the transformation of the alloxantine into murexide is effected "more or less rapidly. In order to obtain a perfect result it is essential that humidity be excluded as much as possible during the "action of the ammonia on the alloxantine." Secondly, to obtain "murexide of a pure character." "I treat alloxantine either in a "dry or humid state, or in solution with ammonia dissolved in "alcohol, or with ammonia dissolved in water and mixed with "alcohol. After a contact of one or several hours I filter and "dry the product, in order to drive away at the same time excesses "of the ammonia solution. I also obtain murexide by treating

" alloxantine, either in a dry or humid state, with ammonia in a " gaseous state mixed with alcoholic vapours." The Patentee proposes to substitute, when required, "carbonate of ammonia for " ammonia," and also to substitute "ether or vapours of ether " for alcohol or vapours of alcohol." "In order to have the " murexide perfectly pure, the product obtained by any of the " above described processes must be dissolved in pure water, " filtered and crystalized or precipitated, from the solution by " carbonate of ammonia, or by any other known process."

[Printed, 3*d.*]

A.D. 1857, May 23.—N° 1455.

COULON, Pascal Florentin.—(Provisional Protection only.) " Certain improvements in velveting paper and textile fabrics." " The invention consists in the employment of human and animal " hair for replacing the ordinary shearings for producing a velvet " coating on pointed paper and textile fabrics, but especially on " the former. The hair is dyed to the required shade of colour, " and should be brought to an impalpable powder."

[Printed, 3*d.*]

A.D. 1857, May 30.—N° 1523.

HEINEMANN, Louis, and HEINEMANN, Arnold.—(Provisional Protection only.) " Improvements in those parts of printing " machines called ' doctors.' " " In the manufacture of what " are technically called ' doctors,' used in machinery or apparatus " for printing and other similar purposes, instead of making them " of steel or a composition of metals, we propose to make them " entirely of glass, and therefore to claim the application of glass " for that purpose."

[Printed, 3*d.*]

A.D. 1857, June 2.—N° 1553.

BENTLEY, Newton, and ALCOCK, John.—" Improvements " in machinery or apparatus for forging and stamping metals, " [wood, leather, cloth, caoutchouc, gutta percha, papier maché, " ivory, bone, &c.,] which is also applicable to pile driving, crushing ores and seeds, beetling and fulling woven fabrics, and other " similar purposes." " We attach one or more hammers, stamps,

“ [illegible] in a vertical bar or [illegible] falls [illegible]
“ [illegible] “In this vertical sliding bar [illegible]
“ a wad or [illegible] with or without an [illegible] pulley, [illegible]
“ [illegible] upon by an [illegible] a
“ [illegible] same manner [illegible]
“ [illegible]; or [illegible] upon a
“ [illegible] of which is the [illegible]
“ [illegible] and falling together. The spiral [illegible]
“ [illegible] formed by [illegible] upon a cylinder [illegible]
“ [illegible] projections either internally or externally, extending
“ [illegible] of its circumference, leaving a space or spaces
“ between the terminations of the projection. The [illegible] may be
“ [illegible] vertical shaft and fixed in any desired
“ [illegible], for the purpose of adjusting the length of lift or stroke;
“ or [illegible] of the wad on the bar or shaft may be [illegible]
“ [illegible] for the same purpose. When the wad or pulley is at
“ the commencement of the spiral projection the lift is the
“ greatest, giving the heaviest blow; but when near the other
“ termination the lift is the least, giving the lightest blow. The
“ space or spaces in the case of spiral projections permit the falling
“ of the hammer, stamp, or lifter.”

[Printed, [illegible]d.]

A.D. 1857, June 6.—Nº 1589.

DOPTER, ALFRED, and JEAN, VINCENT. “Improvements in “ornamenting cloth, wood, metal, leather, and other surfaces.” The surface to be ornamented is first coated with suitable adhesive matter; a plate of wood is then divided into compartments, and the desired pattern or design hollowed out on its surface. These hollows may be filled with various colours, and the surface to be ornamented laid over. When the whole is reversed the colour falls in powder and adheres to the surface of the coated fabric, or the colours may be applied by being sprinkled over a suitable perforated pattern placed on the surface to be ornamented; or by means of a “stretched skin, cloth, or other tissue or surface,” placed on the colours in the several compartments, in order to take off the different coloured powders they contain and transfer m on to the material which is to be ornamented.

Printed, 8d.]

A.D. 1857, June 9.—N° 1610.

KURTZ, CLEMENTE AUGUSTE, and NORI, LOUIS ALCIDE.—(Provisional Protection only.) "Improvements in extracting the "colouring matter from gum lac and other similar substances, "and in treating the residues thereof." The colouring matter from a solution of lac made by hot water and carbonate of soda is precipitated by the addition of a mixture "300 parts of salt of tin, "free from zinc," with a little water, "180 parts of nitric acid," "600 parts of hydrochloric acid," and "200 or 300 parts of "water." The deposit is drained and mixed with about "a third "or a half of its weight of kaolin or pipe-clay, moistened with "water and pressed through a sieve with the deposit," and may afterwards be dried in cakes. "It is prepared for use [in dyeing] "by dissolving it in boiling water, and then adding cold water "and a slight excess of hydrochloric acid," sulphuric acid or salt of tin. "Variations of tints may be produced by the addition of "tartar." "The resin or undissolved gum lac remaining from "the first part of the operation" may be dissolved in boiling water to which "carbonate of soda" has been added, and when cool "filtered and bleached by chloride of soda." "A suitable "acid is then added in slight excess to neutralize the alkali, and "the resin is thus coagulated in clots, and is skimmed off and "placed in water heated to about 150° F., when the clots unite in "a porous mass." This is again melted in boiling water, and lastly cast into moulds.

[Printed, 3*d*.]

A.D. 1857, June 12.—N° 1654.

MACDONALD, MALCOLM.—(Provisional Protection only.) "Improvements in washing, bleaching, cleansing, and preparing "textile fabrics and materials." The apparatus by means of which these actions or operations are carried on consists of a "large "stationary chamber or vessel" in which the goods and "soap," "water," or "chemical ingredients" may be placed. Within the chamber is placed a revolving steam cylinder, around the periphery of which are placed and caused to press against it a series of small rollers. The pieces are caused to pass in a continuous manner round the steam cylinder, and to be pressed or squeezed by each of the surrounding rollers.

[Printed, 3*d*.]

A.D. 1857, June 13.—N° 1661.

KING, John.—(Provisional Protection only.) "Improvements " in the manufacture or production of collars, cuffs, and similar " articles of ladies' dress." "In proceeding to carry out " this invention, the block or roller impressions of the desired " ornamental figures are given to the collar and cuff material " in the piece, each impression being disposed at the requisite " distance from its neighbour, so that the individual collar " and cuff pieces can be afterwards cut out as required, preparatory " to making up for use. The ornamental figure is " thus entirely given by the block or roller printing action, the " figure being suited exactly to the contour or shape of the " article operated upon, and the blocks or rollers being specially " cut for the purpose. Sewed work or embroidery may be " used in connection with the printing processes referred to."

[Printed, 3d.]

A.D. 1857, June 13.—N° 1663.

COMINAL, Etienne.—"Improvements in printing shawls and " other tissues." These improvements "are based on the principle " of folding up the shawls or other broad fabrics [and interposing " pieces of calico, or other suitable materials] in such a " manner as to allow of printing parts of the surfaces of such " fabrics at a time, and to obtain the printing of an entire surface " or side of the same by two or more successive impressions, and " not by printing at once the entire surface, as was done till now, " when printing by means of cylinder machines. One surface " being printed, the opposite surface may then, if required, receive " the impression in a similar manner." The folds and interposed calicoes may be fixed by "sewing, pasting," or otherwise. The borders and centre of the shawl may be thus printed separately in their respective patterns and colours. The Patentee proposes to produce new effects in printing by covering "the pressure roller " with cloth, or felted or other suitable material on which is cut " out the necessary designs at those places, as are required to form " the reserves, either for the ground or for the borders;" as also, by interposing "between the pressure roller and the fabric to be " printed an endless band of thin sheet metal or other suitable " material [which passes round the bowl and over a guide roller]

" suitably covered with cloth, or felted, or other suitable material, " glued to, or in any other suitable manner applied to the said " metal band, in which felted or other suitable material the required patterns or designs are cut out." "The endless metal " band in this method serves for impressing the pattern on the " shawl or other fabric to be printed."

[Printed, 3*d.*]

A.D. 1857, June 15.—N° 1670.

SMITH, William.—(A communication from Rochette, A. E.) —(Provisional Protection only.) " Improvements in chromo-" typographical printing presses." "The sheet of paper to be " printed is laid securely on a moveable tympar, which is " made to revolve by quarters of a revolution after each stroke " of the press. Four proofs [of different portions of the figure " or design] by this process are printed simultaneously on a " a sheet of paper, each proof with a different tint or color, and " successively each one with four colors. After receiving four " impressions the sheet becoming loose is taken out, and a new " one replaced on the tympan."

[Printed, 5*d.*]

A.D. 1857, June 19.—N° 1712.

PINCOFFS, Simon.—"Improvements in treating madder, mun-" jeet, or any of their preparations." These improvements consist in mixing "fatty or oily acids or their compounds," "with mad-" der, or any plants of the same species, spent madder, or any " preparations of madder, and plants of the same species, or of " spent madder, such as washed madder, fermented madder, ga-" rancine, garanceux, or other such substances, by whatever name " they are known in commerce," "and subsequently exposing " the mixed materials to the action of stronger acids." This invention may be carried into practical effect as follows: "I add to " madder, which has been previously washed, a solution of soap, " which solution shall contain about ten per cent. of soap in pro-" portion to the weight of the madder before washing. After " stirring this mixture well about ten or fifteen minutes, I heat " the whole up to about 180° in about an hour. I then allow " the whole to cool, when I slowly add muriatic acid until a de-

" cidedly acid reaction is established. I then add a quantity of " water, and allow the whole to settle. I then draw off as much " of the liquid as possible, after which I again add water, and heat " the whole to about 180°; after this I allow it to cool, and draw " off a quantity of the liquid. After this process, I make garancine from the material so prepared by any of the known methods." Through this process colours brighter and faster than usual may be obtained.

[Printed, 3d.]

A.D. 1857, June 23.—N° 1750.

PROUDFOOT, Duncan.—(Provisional Protection only.) "Improvements in drying and preparing garancine." "The " garancine to be dried by this process is deposited in a horizontal metal cylinder, which may be made either of iron, copper, " zinc, or other material, and heated either by the direction of a " fire or stove beneath it, or by steam. This cylinder is disposed " at a slight vertical angle, and the garancine to be dried is to be " deposited in the elevated end of the cylinder, by means of a " suitable door or opening, and, being made to revolve, the dried " garancine is discharged at the lower end of the cylinder. An " artificial current is created in the cylinder in any convenient " way, so that the vapour rising from the drying garancine is " thus carried freely off."

[Printed, 3d.]

A.D. 1857, June 24.—N° 1773.

JOHNSON, John Henry.—(A communication from Lee, Elisha.)—" Improvements in the preparation of surfaces for receiving paintings or printed impressions thereon." This preparation may be effected by "coating the surface of the material " [muslin, linen, silk, &c.] to be prepared with a composition " made by boiling well washed rice in water, in a clean porcelain vessel, there being just sufficient water to prevent the " rice burning. Whilst boiling, a small quantity of pulverized " borax of either gelatine, isinglass, or best white glue, are " added, taking care to stir and mix the whole well while boiling. With this rice paste equal quantities in bulk of white " lead (or flake white), best Paris white, and white pipe clay, are

" mixed well together with linseed oil (either boiled or raw), and " ground fine, so as to form the whole into a thick composition, " which when spread evenly on any required surface, and sufficiently dry, will be found to possess an absorbent ground, insoluble in boiling water and capable of receiving impressions or " colors." "Paper pulp and potters' clay in small quantities " may also be added to the above composition, and ground fine " with it, where the canvas is required to have the tooth preferred " by some artists in oil and in pastel painting."

[Printed, 3*d.*]

A.D. 1857, June 25.—N° 1783.

INGHAM, John, INGHAM, Edward, and INGHAM, Benjamin.—"Improvements in preparing worsted yarns for dyeing." "This invention consists in preventing worsted yarns " from twisting, curling, cockling, shrinking, or blistering, in, by, " or through the process of dyeing."

"We place the hanks of yarn upon a stretching frame, or any " apparatus so constructed that the yarns can be stretched or distended thereon. We then submit them to the action of boiling " water or steam whilst in that distended state, by which we find " that all tendency to twist, curl, cockle, shrink, or blister is " entirely removed or prevented. The said yarns may then be " scoured and dyed in the usual manner, and retain the straight " state of fibre so desirable to both the manufacturer, the merchant, and the public."

[Printed, 6*d.*]

A.D. 1857, June 26.—N° 1800.

MICHAELIS, Michael, and CLEMSON, John.—(Provisional Protection only.) "Improvements in the production of " ornamental textile fabrics by printing." These improvements relate to silk velvets, " which for the purposes of this invention " are woven without being dyed, as ordinarily practised, constituting a fabric known as in the 'grey' state. Upon this we " print by the usual methods; but, if desired, the ordinary method of dyeing a portion of the threads may be combined therewith. Under the term 'silk velvets' we intend to include

" those fabrics which are imitations thereof, as the same may be " woven with cotton or other backs, or with a mixture of materials."

[Printed, 3*d.*]

A.D. 1857, July 3.—Nº 1853.

LOCKETT, Joseph, and WATSON, William.—" Improvements in machinery for engraving or tracing designs on cylin" drical or other surfaces for printing calico and other materials." The nature of this invention consists, " first, in improved combina" tions and arrangements of machinery for giving a lateral motion, " in either direction, to the diamond or tracer slide, and a partial " rotary motion to the cylinder or other surface on which the " design is to be engraved or traced." " Secondly, in improve" ments in machinery for setting the diamond or tracer slide." " Thirdly, in the application of a revolving table to support the " pattern design." " Fourthly, in the application of a scale to " the revolving table or stationary table, or either of them, for " dividing the engraving lines." " Fifthly, in making the table " for the design a compound slide, and in an improved combina" tion of machinery for actuating it." " Sixthly, in an improved " combination of machinery for actuating the revolving table." " Seventhly, in improved modes of supporting the cylinder or " other surface to be engraved or traced." " And, lastly, in an " improved combination of machinery for transferring the design " from a cylinder, cup, or excentric to the surface to be engraved."

[Printed, 1*s.* 5*d.*]

A.D. 1857, July 3.—Nº 1854.

CLARK, Mathew.—" Improvements in the preparation of cloth " for Turkey red dyeing." These improvements relate to a mode of drying cloth during the process of Turkey red dyeing, to substitute the ordinary method of hanging such fabrics in a hot stove, and consists in passing the cloth " near to the outer surfaces of " chests, tubes, or other passages containing steam, in which process " the risk of overheating and the expenditure of fuel, time, and " labor are less than in the ordinary process. When it is desired to " dilute and rapidly carry away the vapours disengaged from the " cloth by the action of the heat, I effect that object by producing,

" by means of any convenient blowing or ventilating apparatus, a " blast or current of air between the surfaces of the steam passages " and of the cloth." Suitable rollers are applied in order to conduct the cloth in the required manner.

[Printed, 10*d.*]

A.D. 1857, July 7.—N° 1877.

VON CANIG, **Wilhelm Adolf.**—(Provisional Protection only.) " Compound or composition to be used as a substitute for gum, " paste, and other adhesive materials, and for finishing, sizing, " or stiffening fabrics and other articles to which the same is or " may be applicable." "In carrying my invention into effect, I " take the plant called carragheen, or Irish moss, called also fucus " Irlandicus, and after sorting I dry the same by heat and reduce " it to powder and bleach it. I mix the powdered plant with an " equal quantity of starch or flour of rye, corn, acorns, or chesnut, " or the quantities may be varied according to the purpose to " which the mixture is to be applied."

[Printed, 3*d.*]

A.D. 1857, July 9.—N° 1904.

DOBSON, **Arthur.**—(Provisional Protection only.) "Improve-" ments in machinery or apparatus to be used in bleaching, wash-" ing, starching, airing, and finishing fabrics, and in sizing " yarns. These improvements consist, firstly, in the use of a serrated "circular rubber, which I mount on a vertical axis, to " which I communicate any required parts of a revolution in one " direction, whilst the lower rubber on which the cloth rests is " either stationary or moveable in an opposite direction." " Secondly, by the introduction of drawing and delivering rollers " in the sides of the lower front timbers of the [wash] mill frame, " and an arrangement for preventing the loss of water, I make " the mills a continuous washing machine." Thirdly, in placing " moveable doors on the cloth feeding holes and moveable tight " covers on the outlet holes," and also "concentric flanges" to the " edges of the water ring or race," of an "ordinary dash wheel." Fourthly, in improvements in "starching and airing apparatus." An "endless web or sheet" is placed, in a state of tension, "over

" rollers and between two bowls, the lower of which imparts starch " or size to the outer surface of the web." By using "two sheets" yarn may be sized on both sides. The "airing" may be effected by causing the frame on which the piece rollers are placed to " move to and fro" through the air, or by means of a "wire cylin- " der containing a fan." Fifthly, in providing "additional " weights" to levered mangle bowls, when required, and in finishing and winding on the bowls two pieces at one time.

[Printed, 8*d.*]

A.D. 1857, July 9.—N° 1907.

MACNICOL, JOHN DUNSMORE.—(Provisional Protection only.) " Improvements in machinery or apparatus for cylinder print- " ing." "I propose to make the doctor of a strong solid piece of " metal, with strong bushes at each end, so that when it comes in " contact with the copper rollers it will not give way, so as to " make scratches or damages," and will be better fitted for the " printing of blotch grounds."

[Printed, 8*d.*]

A.D. 1857, July 9.—N° 1908.

DE CLERVILLE, JOHN JULIUS CLÉRO.—(A communication from Felix Abate.)—" Improvements in the manufacture of oil cloth " and imitation leather." This invention consists in "the manu- " facture of coloured oil cloths and imitation leather." The Patentee employs a fabric which has been dyed or printed with a design, on a damasked or figured stuff, and prefers, in the first place, to coat it with two coatings of mucilage, and, when dried, to apply three or four coatings of drying linseed oil in succession. The surface is then made smooth by rubbing it with pumicestone, or by calendering; and, lastly, a hard varnish, such as asphalt or copal, is applied, to which may be added colouring matter. Oil cloth may be made to imitate "damask and figured and water " stuffs," "or woven straw," by embossing it by means of engraved rollers, or by a "galvano-plastic" copper plate taken from the article itself intended to be imitated. Or the said article itself may be applied at once to the surface of the oil cloth, and the two together passed between rollers. The fabrics employed may be deprived of the nap by means of burning or singeing in the usual manner, and may be calendered before and after the application of the oil and varnish coatings.

The surface of oil cloth so prepared may be coloured by the application, while the oil or varnish is still soft, of flock of various kinds or dry powders.

The oily coating may be transferred to another surface. In this case the operation is commenced by coating the fabric with "paste," and then applying the oil coatings. When dried the pasted side is wetted, and the oil cloth reversed on to the surface desired, and the pasted side then removed.

[Printed, *4d.*]

A.D. 1857, July 14.—N° 1954.

HEBBLETHWAITE, HENRY, SHUTTLEWORTH, WILLIAM, and TASKER, WILLIAM.—"Improvements in preparing yarns " for and in machinery or apparatus employed in printing yarns " for carpets or other similar fabrics." These improvements consist, firstly, "in making the steeping cistern [for yarns after being " scoured] with a perforated false bottom, and fixing under it a " layer of serge or other suitable fabric, to act as a filter" to the water supplied underneath. Secondly, "in having the rack or " segment wheel (now formed on the inner surface of the drum, " and used for turning from place to place) made with the same " number of cogs as we wish to have divisions on the periphery of " the drum; and we apply a pall or catch thereto, with one or " more cogs formed thereon, which fit into any of the spaces " between the cogs of the segment wheel, thereby holding the " drum securely in any desired position for the proper laying on " of the colours, and thus dispensing with the thick brass rim" hitherto used. Thirdly, "we apply a break to the rim of the drum, " actuated by levers and weights, for the purpose of retarding and " stopping its rotation, as may be necessary." Each thread is caused to pass through the eye of a catch or "faller," which, when a thread breaks, falls on a cam or tappet and throws the strap off. Fourthly, "we employ an adjustable self-acting index plate or in" dicator [having a moveable rim or flange supporting a drop " catch], which stops the drum at any desired number of revolu" tions, or when a sufficient quantity of yarn is wound thereon." Fifthly, "we apply the break or drag to the spindle, instead of the " bobbin, as heretofore adopted." Sixthly "we arrange the color

" carriage to slide freely upon two or more pins or studs in long " bosses, which are parallel with each other, so as to obtain a per- " fectly parallel and steady motion." Seventhly, "we employ a " board or apparatus with holes or eyes for the thread to pass " through, and place it between the bobbins and the guide eyes, " to prevent any broken threads falling on the rotating bobbins." And, eighthly, " we dispense with the frame now used for holding " the design board, by having slots cut horizontally at the top " and bottom of the board itself, to adjust and fasten the scale to " it."

[Printed, 1*s*. 4*d*.]

A.D. 1857, July 17.—N° 1988.

ROBERTS, THOMAS, and **DALE**, JOHN.—" Improvements in " obtaining pigments from dyewoods, and in the application of a " pigment to printing paper hangings." These improvements relate "to obtaining pigments from dyewoods, and the principle " proceeded upon is to immerse them in a fluid containing a sub- " stance or substances which will take up the coloring matter as " it is dissolved." "Also, to the use of barwood as a pigment, " and in the application of a pigment obtained from barwood [or " from other suitable dyewood, such as 'red wood or red sanders " 'wood' and 'cam wood'], to the purpose of printing paper " hangings." A suitable quantity of water and of dyewood may be placed in a vessel of wood and brought to the boil by means of steam. To this is added sufficient persulphate of tin (other salts of tin or iron may be used), the oxide of which is precipitated by the dilution, as is well understood by chemists. At the end of several hours heating and stirring the " colouring matter will have " been extracted from the wood and taken up by the oxide of tin, " forming with it a bright red suitable for a pigment, but mixed " with particles of the ground or chipped wood." The woody particles may be separated from the dyed oxide by subsidence and by a sieve, and after being washed and filtered the lake is ready for use. "The wood remaining in the vessel [dyed as above or by " other means] will be found to be a coloured material, and " having been reduced by grinding or other means to fine par- " ticles, is applicable as a pigment for general purposes." The colouring matter of barwood, when extracted by means of hot

" alkaline solutions," as the "carbonates, borates, and stannates " of soda, potash, and ammonia," may be "added to oxide of tin " or other oxide or salt, according to the color required; and the " pigment thus produced may be modified in consistence by the " addition of foreign substances, as chalk, china clay, sulphate of " barytes, &c."

[Printed, 3*d.*]

A.D. 1857, July 20.—N° 2006.

CONWAY, Joseph.—"Improvements in the production of " copper rollers for printing calico and other fabrics." "According " to this invention, after boring the usual block of copper " the cylinder so formed is heated, and a mandril, the ends of " which project beyond the cylinder, is introduced; these ends are " dropped into bearings fixed on a sliding carriage, which is " advanced by screws until the copper cylinder is strongly pressed " against an iron roll [of about three feet diameter] revolving by " engine power. This exterior roll is slightly flattened on one " side, and at each revolution when this flattened part comes in " the line of the axis of the two rollers the screws are tightened, " and thus the copper cylinder is nipped between the mandril and " roll and expanded. By [introducing larger mandrils and] " repeating this process cylinders of any diameter may be produced " without the loss of copper consequent on the process of " boring. The cylinder is then turned and finished in the " ordinary manner."

[Printed, 3*d.*]

A.D. 1857, July 23.—N° 2027.

NORRIS, Charles.—"Improvements in the manufacture of " sulphate of alumina, and the application of the same so manufactured " in dyeing, printing, paper making, and such like " purposes." "Take any convenient number of hundredweights " of such prepared china clay [in fine powder], whilst it is moderately " hot, from the usual preparatory apparatus, and mix it by " power or otherwise with about the same weight of sulphuric " acid, of specific gravity about 1·750 when at 60° Fahreinheit, or " thereabouts, according to the quantity of alumina contained in the " china clay, the sulphuric acid being at the time moderately hot

" from the usual evaporating boilers. One of the said materials " may be used cold, provided the other be sufficiently hot. This " mixture is thrown or formed into a heap of any convenient " size, and the action of the acid on the clay commences spon- " taneously, proceeding with violent rapidity until the heap " becomes a dry crude sulphate of almunia, and when cool, is fit " for use or sale, and may be rough ground before being packed." " If both the ingredients have been allowed to go cold before " being mixed and heaped together, they may show tardiness in " combining, but a red hot poker pushed a few inches into the " heap will immediately commence the action, which quickly " pervades the whole mass, of whatever number of tons it may " consist." The Patentee also claims "the use of crude sulphate " of alumina, so produced, in the various arts and manufactures " in which it can be advantageously employed."

[Printed, 4*d*.]

A.D. 1857, July 29.—N° 2066.

KENYON, Hartley.—(Provisional Protection only.) "Im- " provements in the treatment of certain compounds of silica, " alumina, sodium, or potash, and the application of such com- " pound in the processes of printing, dyeing, tawing, paper " making, or in any other process in which the alumina of " commerce is employed." "To effect these improvements take " two parts of clay or spar, calcined or otherwise, and ground, or " both combined, and add one part of marine salt, muriate of " soda, or nitrate of soda, or nitrate of potash, 1½ parts of boiling " water, and dissolve ⅛th part of Glauber salts or acid, sulphate of " soda, or sulphate of potash, and add it to the above-named " spars or clays and salt, and put it in a pot or cylinder or any " convenient furnace, and mix with it one part of concentrated " sulphuric acid, 1·850 spec. grav., and drive off and collect in a " tower or jars the hydrochloric acid, or the aquafortis if " nitrates are used; or, put two parts of clay, one part of marine " salt, or nitrate of soda, or potash, and two and a half parts of " sulphuric acid 1·350 spec. grav., or thereabouts; but these " exact proportions are not important. Take the residue and " submit it to a furnace, as used by soda ash makers, heated by " the residue of heat from the pot, or any other kind of furnace

" until the whole of the hydrochloric or nitric acid gases are " driven off."

[Printed, 3*d*.]

A.D. 1857, July 29.—N° 2071.

BURNETT, Jonathan.—(Provisional Protection only.) " Improvements in the manufacture of chloride of lime or bleaching " powder." " I propose, instead of working the stills and chambers detached, as is now done, to work them all or any convenient number of them in common, collecting the chlorine gas " as it is produced in the stills into one main or common pipe, " which would convey the gas either directly to the chambers, or, " what would be better, to a common reservoir of any convenient " size, in which it might be cooled and purified from the muriatic " acid gas and vapour it generally contains, by a small stream of " water running through the reservoir. From this reservoir the " gas would then be conveyed by another main or common pipe " to the chambers containing the lime; thus the stills and " chambers would form one common system. In order to connect " them with or disconnect them from this common system when " necessary during the time the stills or chambers are being " recharged, each set of vessels would be provided with cocks, " tute syphons, or any other convenient apparatus to effect this " purpose."

[Printed, 3*d*.]

A.D. 1857, August 5.—N° 2115.

LITTLEWOOD, John, and SCHLUMBERGER, Albert.—(Provisional Protection only.) " Improvements in producing " printed or dyed colors from murexide on woollen fabrics, or " yarns, or mixed fabrics, or yarns of wool and cotton."

" For printing purposes we take fabrics or yarns of wool or " mixed fabrics, or yarns of wool and cotton, previously well " bleached, and prepare them with a mordant of binoxide of tin, " or we give a compound preparation or mordanting of binoxide " of tin and oxide of lead, or binoxide of tin and oxide of mercury, " or a mixture of all these together. After the preparation we " print on murexide mixed with a mordant of lead, or with a " mixture of mordants of lead and tin. When dry, we pass the

" goods into a mercurious solution, and from this into water, and
" then dry. For dyeing the above descriptions of goods with
" murexide, we first prepare them with solution of tin, and after
" well washing dye in a solution of murexide in water only, then
" wash and dry."

[Printed, 3*d.*]

A.D. 1857, August 10.—N° 2141.

GEDGE, John.—(A communication from Elbena, Adolphe Barthelemy.)—(Provisional Protection only.) "Improvements
" in carriages of printing presses." "An axle, situated about one-
" third of the distance from the back of the frame, is worked by a
" winch; on this axis I place two wheels and a drum (the latter
" to contain the motor or driving spring). The larger of these
" two wheels being toothed, gears into a pinion wheel supported
" by a shaft passing from side to side of the frame; this pinion
" causes another wheel placed on a lower shaft to rotate, and the
" last-mentioned wheel, by means of a second pinion fixed on a
" third shaft, causes a toothed wheel fixed on the same shaft also
" to rotate, it being driven round by the wheels and pinions
" aforesaid; this wheel gears into a pinion wheel fixed on the
" second or middle shaft, thus communicating motion to a wheel
" placed beneath the framing on two supports of iron. A crank
" called the carriage crank carries the arm of the balance, which
" is attached to the carriage, and also the flier which is placed to
" retain power at command."

[Printed, 3*d.*]

A.D. 1857, August 29.—N° 2277.

WHITTAM, Robert.—" Improvements in machinery or appa-
" ratus for ruling upon metallic rollers or cylinders for printing
" calico and other materials." This invention relates to " self-
" acting machines or apparatus for ruling lines upon the surfaces
" of metallic rollers or cylinders for the purpose of forming a
' ground for carrying a body of colouring matter for printing
" calicos and other materials." The Patentee claims as improvements on this class of machines "the construction and arrange-
" ment of machinery or apparatus for ruling lines within an
" outline figure or shape from an indented model of the original

" design;" " the method of ruling one or more rollers or cylin-
" ders at the same time from one model;" "the mode of trans-
" ferring an enlarged or diminished figure or shape from an
" indented model to the surface of the roller or cylinder in ruling
" lines;" "the mode of stopping the machine when the cylinder
" has made one revolution, or when the self-acting carriage has
" given the required number of strokes;" "the mode of working
" the said machine or apparatus, by hand, either with or without
" the indented model;" "the beam for regulating the points
" when the rail is set at an angle with the roller;" "the counter-
" balance weights for balancing the points, giving an uniform
" pressure to the point on the model;" and, lastly, "the appa-
" ratus for lifting the point from the model whilst the carriage
" reverses."

[Printed, 10*d.*]

A.D. 1857, September 1.—N° 2289.

COATES, Henry.—(Provisional Protection only.) " Improve-
" ments in heating liquids used in bleaching, dyeing, soaping,
" clearing, and sizing." These improvements consist in causing
" steam, hot air, or other heating agent to pass through pipes or
" chests placed in the vessel containing the liquid to be heated."

[Printed, 3*d.*]

A.D. 1857, September 21.—N° 2445.

SCHAUB, George.—" A new or improved manufacture of
" rollers or cylinders, with patterns or designs thereon for print-
" ing fabrics and other materials." This invention consists in
" manufacturing rollers or cylinders by depositing copper in the
" interior of a hollow metallic cylinder, which said hollow me-
" tallic cylinder is composed or built up of portions carrying on
" their ends the pattern or design to be reproduced in the copper
" deposit, the said copper deposit or cylinder being [afterwards]
" strengthened and made up into a printing roller or cylinder."
The "hollow metallic cylinder" is built upon a wooden roller or centre, and its separate pieces may be secured to each other by strips of gutta percha, india rubber, plaster of Paris, or other suitable means. The wooden roller is then withdrawn, and the hollow

cylinder immersed in a solution of sulphate of copper, where, by the aid of galvanic action, its interior is coated with a lining of copper. The hollow cylinder is then taken to pieces and removed, and the thin cylindrical copper roller formed as above, on which is now the design in relief or sunken, is strengthened inside by means of a "lining of sheet iron exactly fitting the spindle [the " mandril] on which the roller has to work in the printing pro" cess." "The space between the interior of the copper cylinder " and the lining is then filled up with some material [such as " Keene's cement], hard enough to resist the pressure employed in " printing." The ends are properly secured by collars.

[Printed, 7d.]

A.D. 1857, September 25.—Nº 2474.

BARBER, John.—"Improvements in machinery or apparatus " for manufacturing rollers or cylinders used for printing and em" bossing woven fabrics, paper, leather, and other materials." The Patentee makes his "rollers or cylinders of two separate " tubes, the inner of iron or other suitable metal, and the outer " one of copper, brass, composition, or other metal similar to those " now in general use;" and claims as novel in the said manufacture, first, "the expanding cutter for boring the roller or cylinder " so as to leave the end bearing the required form." Second, " the compound boring head for holding two or more cutters for " boring seven-eighths or nine-eighths rollers." Third, "the " machinery or apparatus for making the said cutters, whether " for the larger boring rod or the smaller ones." Fourth, "the " construction of the compound boring maundril and head for " boring large cylinders." Fifth, "the machinery or apparatus " for putting iron or other metal or composition tubes into the " copper rollers, by means of contraction and expansion, and the " employment of water or other fluid for the purpose of keeping " the inner tube cool, and prevent expansion of the metal." Sixth, "cutting grooves of iron or inner cylinders square or dove" tailed." Seventh, "cutting the same in waves." Eighth, " making the same equi-distant, similar to right and left hand " screws." Ninth, "the use of short tubes to support the ends " of the rollers." And, lastly, "the general arrangement and " construction of the various machines or apparatus for manufac-

"turing rollers or cylinders, applicable for printing purposes, as "herein described and illustrated in the accompanying eight "sheets of drawings.

[Printed, 4*s*. 2*d*.]

A.D. 1857, September 28.—Nº 2490.

KAY, ROBERT. — (Provisional Protection only.) "Improvements in machinery or apparatus for printing calico and other "textile fabrics." "The invention consists in the employment "of an endless web of worsted or other woollen cloth in place "of the calico or other back cloth in ordinary use, such web "passing between the cloth to be printed and the cylinder, and "may be used with or without blanket or lapping; and in conjunction with this endless web is arranged suitable apparatus "for washing and drying it as required, whilst revolving or traversing before its return to the printed cylinder. The endless "cloth above named may be either of woollen, worsted, or cotton, "or any non-absorbent material."

[Printed, 3*d*.]

A.D. 1857, October 3.—Nº 2537.

RILEY, WILLIAM, and RILEY, THOMAS.—"Improved means, "machinery, or apparatus for 'saving' or covering the lists of "textile fabrics previous to the dyeing of such fabrics." These improvements relate to the covering of the lists or edges of textile fabrics by machinery, to prevent their taking the dye during the process of dyeing such fabrics. This has heretofore been done with the hand by sewing a "web" or binding over the edge or list of the fabric. "On suitable framework we arrange rollers, "over which the fabric is caused to travel with the webbing "to a series of guides or apparatus, which in succession turn up "the edge or list of the fabric and webbing, and by degrees form "a fold, lap, or roll on the edge of the fabric with the webbing "outside, thus forming a binding or covering to the list."

"Reciprocating motion is given to a needle supplied with suitable thread, which is caused to pass through the fabric at or "about the inner edge of the fold or roll, when a fork or other "suitable instrument takes hold of the thread and holds it until "the needle is withdrawn, and which then carries or turns the

" thread in a loop around the fold or edge of the fabric to a point " on the other side, where the needle will pass through the loop " previous to its next insertion into the fabric, and thus links the " last stitch with the succeeding one, the fork or other instru- " ment again taking hold of the thread when passed through the " fabric, carrying it around the edge or list, as before, and so on."

[Printed, 1*s.* 7*d.*]

A.D. 1857, October 8.—N° 2580.

TODD, William Richard, jun.—" Improvements in manufac- " facturing or preparing washing blue." " To manufacture my " improved washing blue, I take [for example] one pound of the " finest indigo, and dissolve it in five pounds of sulphuric acid; " I then neutralize the acid with fifteen pounds of soda, alkali, or " common salt; to this mixture I add thirty pounds of sago " flour, or wheaten starch, or other farinaceous matter (which- " ever may be the cheapest and best suited for the purpose), and " also five pounds of carbonate of soda; the whole is then dried " and reduced to a fine powder by grinding in suitable mills, or " it may be reduced by pounding, when it is fit for use."

"To the compound above mentioned, I sometimes add a small " portion, say ten pounds of fine smalt blue, or ultramarine blue, " or it may be a little of both sorts combined.

[Printed, 3*d.*]

A.D. 1857, October 14.—N° 2623.

KEIGHLEY, Edward.—" Improvements in the preparation " and use of dye liquids." These improvements consist in " the " use of filtering means in connection with the vessels or chambers " used in the dyeing process, in order to separate the portions of " dye woods or ware from the goods being dyed, and also to " separate any remaining portions of such matter from the waste " liquid at the completion of a process, in order that such as are " not fully spent may be again used."

"As filtering media I employ finely perforated copper or other " suitable metal, or metal weaving, aided by moleskin or other " suitable fabric; but I do not confine myself to these materials, and I apply the media employed by preference to a frame ' capable of fitting and sliding lightly in the vessel or chamber

" containing the solution." " The filtering frame may be placed " in the cistern by allowing it to slide down therein, and then I " apply my dye woods or other matters so as to obtain a dye " solution or extract therefrom in the ordinary manner; and when " the solution is of the strength desired, I, by means of a pulley " or other suitable apparatus acting upon a cord or chain, withdraw the frame, by which, whilst the solution will pass freely " through the filtering media the particles of dye wood or other " matter will rest upon the surface therof, and be withdrawn, " thereby leaving a uniformly impregnated solution for dyeing " purposes."

[Printed, 9*d*.]

A.D. 1857, October 16.—N° 2648.

GUTHRIE, David, and VAVASSEUR, Josiah.—" A machine " for cutting, chipping, or rasping dye woods, or other similar " fibrous substances, for the purpose of obtaining extracts." This machine consists of a " drum, of any required diameter and " depth, hung and fixed to a vertical shaft upon which it revolves, " having a footstep at bottom, and bearing at top, and is driven " by wheels, or by any of the ordinary methods for similar purposes. The cutters are fastened to the drum by means of screws " or bolts, and project through the face the required distance, " similar to the iron in a carpenter's plane. The wood or substance to be cut is placed in a trough [or troughs] and is fed or " forced forward against the cutters by means of a rack or screw, " [or racks or screws] which may be worked by hand or made self " acting, as circumstances require. The trough is angled on one " side, by which means the wood, &c. is jammed more firmly " while cutting, and several pieces can be fed at the same time as " the trough may be filled."

[Printed, 8*d*.]

A.D. 1857, October 16.—N° 2654.

CHADWICK, James.—(Provisional Protection only.) " Improvements in rollers or cylinders for printing or staining the " surfaces of woven fabrics, yarns, paper, and other materials." " Firstly, I take the ordinary copper, iron, wood, composition, or " metallic roller, and by cutting or other process get in relief the

" parts intended to give the impression. But instead of filling " the parts thus relieved (as hitherto adopted) with felt or other " absorbent or elastic substance, in order to carry a large body of " color to the cloth, I propose to etch or engrave the said relieved " parts in lines or cells, as with ordinary engraved printing rollers, " so that the said lines or cells shall carry more color than an " absorbent substance, besides which they will give finer impres- " sions." "Secondly, I take a roller or cylinder of the required " dimensions, whether made of iron, copper, lead, brass, steel, " wood, composition, or other material, and engrave or etch it as " for ordinary printing rollers, and polish it ready for use. I " then put it into a bath supplied with a solution of copper, lead, " tin, or other suitable material, and apply to it a galvanic battery " by which I electroplate the roller."

[Printed, 3*d*.]

A.D. 1857, October 19.—N° 2669.

BROOMAN, Richard Archibald. — (A communication.)— (Provisional Protection only.) "Improvements in producing figured " fabrics in which the design is applied by printing." A number of " small printing sticks are arranged in a suitable holding frame, in " such manner as to correspond with the reading off of one element " or division of the design ; these sticks are then supplied with the " required color and applied carefully to the threads, laid parallel on " a table, their position being accurately determined by means of " the scales at the side of the table; their application may be re- " peated on the lower sides of the threads, if the latter are so thick " as to require a second application. The frame with the sticks is " then moved along the threads over a distance equal to the length " of one element or division of the design, and the printing is then " repeated. In this manner the weft is colored as required, and " when made up into a fabric will be found to produce the " intended design."

[Printed, 3*d*.]

A.D. 1857, October 20.—N° 2679.

BRIGGS, Edward.—(Provisional Protection only.) "An im- " proved manufacture of printed piled fabrics." "A fabric is " woven in the ordinary manner with a silk weft, which is cut and

" raised to form a piled surface; this surface is then printed to any " required pattern, and again raised or finished to complete the " fabric."

[Printed, 3*d*.]

A.D. 1857, October 30.—N° 2758.

SHIELDS, WILLIAM.—" Improvements in machinery or apparatus for etching, engraving, and cutting cylinders and other " surfaces to be used in printing and embossing."

These improvements refer to " those machines in which a tracer " is employed to be passed over the design to be copied, the " motions of which tracer are followed by an etching or cutting " instrument," and consist, first, in the use of " inclined planes " for the purposes of regulating the motion of the tools and of " the surface to be operated upon, or either of them."

Secondly, in the use of the "parallel bars," illustrated in the drawings. To the parallel bars which carry the rod that conveys the motion of the tracer is " fixed a bracket which carries at its " upper end a stud projecting into a groove formed lengthwise in " a lever; this lever is attached by an arm to a cross bar, and is " capable of being turned upon its centre so as to occupy any " angle in reference to the tracer rod, being confined in any desired " position by a tightening screw, and thereby constituting an " inclined plane for the stud to act against." Other parallel bars " running on flanged rollers, situate upon fixed bars," have attached to them " ribs of steel or other material upon which the " cylinder [or flat surface to be engraved] bears so as to communicate rotatory motion thereto." The Patentee also claims "the " employment of rotating tools for the purpose, and as applied " to that class of machines above specified." The cutting tools are caused to rotate, while traversing or while remaining in one position, by means of double-grooved pullies placed on their spindles and driven by a band suitably guided.

[Printed, 1*s*. 9*d*.]

A.D. 1857, October 30.—N° 2763.

KNOWLES, SAMUEL.—" Improvements in 'dunging' fabrics " preparatory to dyeing." " I 'pad' or otherwise impregnate " the mordanted piece in a mixture of dung and water, or in a

“ solution or mixture in water of the dung substitutes (preferring “ the latter) of a definite strength, proportionate to the quantity of “ mordant upon the pieces, and I immediately run the pieces “ rapidly through a chest or chamber charged with steam, and “ then wash them thoroughly, after which they are at once ready “ for dyeing.”

[Printed, 3*d*.]

A.D. 1857, November 3.—N° 2793.

WAPPENSTEIN, Rudolph.—“ Improvements in doctors or “ scrapers used for cleaning engraved surfaces.” “ I claim the “ application of horn or any compound of horn with other substances for the manufacture of what are technically called “ ‘ doctors ’ for cleaning engraved surfaces used in printing woven “ fabrics.”

[Printed, 3*d*.]

A.D. 1857, November 11.—N° 2848.

TAYLOR, Isaac.—“ Improvements in apparatus used in printing calico and other fabrics where cylinders are employed.” This invention requires “ that in the printing machine boll, and “ not the engraved shell or roller, or the mandril which carries it, “ should be in gearing with the driving power,” and “ consists in “ employing a spindle [a mandril] so much smaller than the interior of the shell or roller (which is placed thereon), as that the “ spindle may be deflected or bent when under pressure in the “ printing machine without communicating such bending to the “ roller or shell placed thereon; and this is accomplished by “ having adjustable bearings [two of them], with curved surfaces “ on the spindle [and within the roller], such bearings being capable of being fixed nearer to or further from each other thereupon. The bearings coincide as to their diameter with the interior of the roller or shelf. Furthermore, the fixed bearings “ [or steps], in which the necks of the spindle turn are also of a “ curved form, instead of being parallel or cylindrical, by which “ means they admit of some play in the spindle when yielding to “ the pressure of the machine.” This invention is “ primarily “ intended to facilitate the use of thin metallic shells.”

[Printed, 7*d*.]

A.D. 1857, November 21.—N° 2928.

WRIGHT, James.—(A communication.)—(Provisional Protection only.) "Improvements in the mode of treating madder for printing, "dyeing, and distilling purposes, and also in the preparation and "treatment of silk, cotton, and woollen cloth for printing and dye-"ing." The expressed liquid from madder and water, to which a little sulphuric acid may have been added, "after standing forms a "jelly, which again, upon standing still longer, separates into a "liquid and a partly solid form; the liquid being decanted, I wash "the residuum, which, when mixed with gum, [and in some cases "with a mordant], is ready for printing or dyeing." "The liquid "which runs from the jelly" may be neutralized, then fermented by yeast and distilled. If the "residuum" be treated with dilute sulphuric acid and then washed, colours of a deeper crimson shade may be obtained. The Patentee further proposes to use a "solu-"ble phosphate" as a substitute for "cowdung;" and also to purify cowdung liquor, by means of filtering it through a "bed "of charcoal." In the process of "steaming the cloth," the Patentee proposes "to arrange that the temperature of the "steam when first admitted to the cloth shall be below that of "boiling water, and afterwards increased to a higher tempera-"ture."

[Printed, *3d.*]

A.D. 1857, December 8.—N° 3038.

WARD, William Jones.—"Improvements in dyeing and print-"ing textile fabrics and materials, and in apparatus connected "therewith." These improvements consist firstly, in printing on the fabric, by the usual means, a mixture which may be composed as follows:—"I take four pounds four ounces of ground pulp, "which will contain about two pounds of fine Bengal indigo; "with this I intimately mix four pounds of glucose made from "rice starch, and about the consistency of treacle [or grape sugar, "starch sugar, dextrine, cane sugar, or other such substance of "that chemical group]. I then take two pounds ten ounces of "slacked pulp lime, of such consistency as would be left upon a "filter; this is also intimately mixed with the indigo and glucose, "and I then add two pounds ten ounces of solid caustic soda,

“ also well intermixed.” The goods so printed “are [immedi- “ ately] passed through an atmosphere of steam, by which the “ dormant or feeble action of the glucose is assisted, and the “ indigo is reduced.” If the steam issues at about “one pound “ pressure, their passage through it for about half a minute, more “ or less, will be sufficient” to effect the full reduction. The mixture, as above described, may be heated, or it may be allowed to remain a sufficient time at natural temperatures, when, in both cases, the indigo will be reduced, and in that state may be applied to the fabric. “Blue vats” may be set with indigo so reduced. To the above mixture may be added such substances as “a salt of “ lead,” “alumina,” or “oxide of tin,” which on being applied to the fabric, and suitably raised or dyed, will yield various shades.

The steaming apparatus may consist of “two steam chest “ (closed at the sides), from one or both of which steam is allowed “ to issue,” and between which the goods are caused to pass; “or “ I admit steam between the said surfaces from another source, so “ that it may be super-heated.” This mode of steaming “is ap- “ plicable to goods printed by ordinary processes.” The reduc- “ tion of the indigo on the cloth may be effected “in vessels “ within which a vacuum is established, or which are filled with a “ gas not containing free oxygen.”

[Printed, 4*d*.]

A.D. 1857, December 11.—N° 3057.

STATHER, John.—“Improvements in producing surfaces in “ imitation of wood, for printing from.” The Patentee takes “an “ impression upon a plastic material (preferring gutta percha) from “ the wood to be imitated, placing the plastic material upon which “ the impression is made around a cylinder or upon a block, either “ before or after making the impression. The surface of the “ material thus impressed (when it has become sufficiently hard or “ firm) may be used for printing upon paper,” &c. A “reverse” may be obtained by taking an impression in a plastic material from the above surface. An impression may also be taken “from “ the surface of a piece of wood upon paper, in ordinary printing “ ink or other suitable glutinous and adhesive matter, and apply “ the impression thus obtained to the surface of a block or roller

" in such manner as to produce a lithographic or zincographic " printing surface. Or I engrave the surface of the block or roller " so that it may be employed in printing in like manner as ordinary " printing blocks or engraved surfaces."

[Printed, 3*d.*]

A.D. 1857, December 15.—N° 3076.

SMITH, William.—(A communication from Rochette, A. E.) " Improvements in chromotypographical printing presses." These improvements relate to an apparatus or machine for printing four colours, by one impression, from four blocks or forms placed in one frame, and suitably supplied with distinct inks or colours. The blocks carry each one-fourth part of the complete design, so that by causing the material to be printed to move four times, thereby making one revolution while the blocks make four impressions, the design will be completed in four colours.

[Printed, 1*s.* 10*d.*]

A.D. 1857, December 15.—N° 3079.

CHADWICK, James.—" Improvements in rollers or cylinders " for printing or staining the surfaces of woven fabrics, yarns, " paper, and other materials." The Patentee proposes to fix "the " metal types at present used in block or surface roller printing " " to a roller or rollers made of iron or any other suitable metal, " the said roller or rollers being drilled at given intervals, and the " holes tapped to receive set screws which pass through the blank " parts of the types;" or by means of " soldering and cementing." The types may be arranged on two rollers, with perfect " accuracy " and register," by means of a ruling machine.

[Printed, 7*d.*]

AD. 1857, December 21.—N° 3138.

STURGES, Richard Ford.—A new or improved manufacture " of rollers or cylinders for printing fabrics." In carrying this invention into effect, " I take a tube or hollow cylinder of copper " or alloy of copper. The said tube is of a size suitable to form " the exterior or printing surface of the roller or cylinder to be " manufactured. I place the said copper or copper alloy tube in

" a vertical position, and I fix temporarily in the axis of the said " tube a rod or mandril of a size and figure similar to the size and " figure of the axis on which the finished roller or cylinder is to " be placed when used. A groove or depression is cut along the " whole length of the mandril when it is intended to fix the " finished roller on its axis by a 'nib' in the interior of the " roller engaging in a slot on the mandril similar to the slot. The " lower end of the tube is closed by means of a ring of iron or " other suitable metal, the said ring occupying the bottom of the " annular space between the copper tube and the rod or mandril. " The several parts being in the positions described, I pour fused " cast iron into the annular space between the copper tube and " the rod or mandril, filling the said space with the said fused cast " iron. I allow the whole to cool, and then remove the rod or " mandril from the axis of the roller or cylinder. The said mandril is slightly taper, and may be removed by a few blows from " a hammer."

[Printed, 5*d*.]

A.D. 1857, December 22.—N° 3143.

GREENHALGH, Orlando, and HUTCHINSON, Robert.—(Provisional Protection only.) " Improvements in apparatus for " stirring and mixing colours for calico printing and other purposes." This invention relates to " the addition of certain " parts to the ordinary apparatus in order to effect a more perfect " stirring of the color, and consists in combining with the usual " revolving vanes one or more additional vanes, which are caused " to revolve at right angles or at another angle thereto. In an " arrangement we employ, a boss upon the axis of the usual vane " carries a fixed bevil wheel taking into another mounted upon a " cross shaft, on either end of which is affixed an additional vane. " As the first mentioned axis therefore revolves it communicates " rotatory motion to the latter, and effects a stirring of the " material in a vertical direction."

[Printed, 3*d*.]

A.D. 1857, December 30.—N° 3188.

BOOTH, Tempest.—" Improvements in the treatment of certain " vegetable matters, and in the application of the same to the

" purposes of sizeing, stiffening, dressing, and finishing textile " materials, and which is also applicable to thickening colors for " printing." These improvements relate, first, "to the treatment " of such vegetable matters, as wheat flour, rice flour, barley flour, " farina, sago, mandioca, and tapioca, and other similar vegetable " matters " or mixtures thereof, " with oxalic acid or other acids " having similar effect." Secondly, to the "application of such " vegetable matters (so treated), to the purposes above named;" and may be effected as follows:—" I take one hundred weight of " wheat flour, &c.," " and [well] mix with it from half a pound to " one pound of oxalic acid, tartaric acid or citric acid," in the " dry state;" "after this I put the flour and acid on a steam chest " which has high pressure steam passing through, or in, a furnace, or through a calcining cylinder, the furnace or cylinder " being nearly the same heat as the steam chest," and on "submitting the flour and acid to one of these processes for from " eight to ten hours, more or less, the acid will have converted the " insoluble starch contained in the above named substances, into " soluble starch or dextrine." " For some qualities of starch that " are required, I treat the above-named vegetable matters and " acid," " by merely mixing them with cool water in the proportion of one pound of the former to one gallon of the latter." " This combination may also be made to produce an excellent " soluble starch by boiling " it with steam or otherwise.

[Printed, 3*d*.]

APPENDIX A.

A.D. 1854, December 9.—N° 2583.

THOM, John.—" Improvements in apparatus for singeing and " firing cotton and other fabrics."

These improvements consist " in the application of an arch, " flues, and other apparatus to the apparatus now in use for " singeing or firing cotton and other fabrics, by which the sparks, " dust, and smoke about the firing plate are conveyed to the " under side of the fire grate for the purpose of being consumed."

[Printed, *6d.*]

APPENDIX B.

CHRONOLOGICAL LIST OF WORKS AND PAPERS RELATING TO BLEACHING, PRINTING, AND DYEING FABRICS, &c.

A.D.

70? Caius Plinius Secundus. Historia Naturalis. (First edit. Venice, John de Spira, 1469.—English translation by Philemon Holland. London, 1601. 2 vols. fol.)

750? Dissert. de Textrinâ et Vestibus Sæculor. Rudium Antiq. Ital. (MS. of 8th century, quoted by Muratori, Dissert. de Art. Ital , containing descriptions of dyes, &c.)

1429. Mariegola. Dell' Arte de Tentori. Venice. (The first collection of processes employed in dyeing.) A second edition, enlarged, in 1510.

1536. Alexis [Jerome Rosello or Ruscelli?]. The Secretes of Maister Alexis of Piemont; containyng excellente remedies, . . . with the manner to make distillation, perfumes, comfitures, diynges, colours, &c. Translated out of French into English, by W. Warde. [In four parts.] London, 1562–78. 4to. (The original edition was printed at Basle, 1536.)

1543. Allerlei Flecken aus Kleidern zu bringen, wie Garn und Leinwand, Holz und Bein mit mancherlei Farben zu färben. Mainz.

1548. Giovan Ventura Rosetti. Plictho dell' Arte de Tentori, che insegna tenger Panni, Tele Banbasi e Sede, si per l'arte magiore, come per la comune. Venezia. (Founded on the work of Mariegoli.)

1583. A profitable Boke, declaring dyuers approoued remedies to take out spottes and staines in Silkes, Velvets, Linnen and Woollen Clothes with diuers colours, how to die Velvets, Silks, &c.; also how to dresse Leather, and to colour Felles, &c. Taken out of Dutche and Englished by L. M. London. (Reprinted, with additions, 1588 and 1596.) 4to.

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1592. Richard Hakluyt. Two Remembrances of Things to be undiscovered in Turkey touching our Cloathing and Dyeing. London.

1596. W. P. A Booke of Secrets; shewing diuers waies to make and prepare all sortes of Inke and Colours, as Blacke, White, Blew, Greene, Red, Yellow, and other Colours. Also to write Gold and Siluer, or any kind of Mettall, out of a Pen; with many other profitable secrets, as to colour Quills and Parchment of any Colour, and to graue with Strong Water in Steele and Iron. Translated out of Dutch, by W. P., &c., &c. London. 4to.

1599. Ferrante Imperato. Istoria Naturale. [Contains account of preparation of Orchella for dyeing, &c.] Napoli. fol.

1605. A profitable Booke, declaring divers approved remedies to take out Spots and Stains in Silkes, Velvets, Linnen and Woollen Clothes; with divers Colours how to die Velvets, and Silkes, Linnen, and Woollen, Fustian, and Thread; also, to dress Leather and to colour Felles. Taken out of Dutch, and Englished by L. M. London. 4to.

1616. Fabio Colonna. De Purpura. Romæ. 4to. (Reprinted at Kiel, 1675, with notes by Daniel Major, a German physician.)

1619. Petrus Maria Caneparius (or Canniparius). De Atramentis cujuscunque generis. Venetiæ. (Also Lond. 1660.) 4to.

1652. Petrus Castelli. De Mutatione Colorum in Mixtione Liquorum Chymicorum. Messanæ. 4to.

1662. Sir William Petty. Apparatus to the History of the common Practices of Dyeing. (Printed in Sprat's History of the Royal Society, and said by Bancroft to have been the first original account published in the English language of the means and operations used by dyers.)

1664. Hon. Robert Boyle. Experiments and Considerations upon Colours, &c. London. 8vo.

1666. Verny. An Account of the Use of Grain of Kermes for Coloration. (Phil. Trans. Abr. i. p. 134.) London.

1669. [Colbert, assisted by M. D'Albo, published in this year, and afterwards in 1672, a Code of Instructions for Dyers: " Instruction Générale pour la Teinture des Laines, et " Manufactures de Laine de toutes Nuances, et pour la

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"Culture des Drogues ou Ingrédients qu'on emploie." This Code was reprinted in 1708. See below.]

1669. Hooke. [New Process for staining Calico.] (See Birch's History of the Royal Society, vol. ii. p. 401.) London.

1683. Ars Tinctoria fundamentalis. Frankfurt. (Later editions, Jena, 1685, 1730.)

1685. William Cole. Observations on the Purple Fish, (*Buccinam lapillus*, Lin.) (Phil. Trans. 1685; Phil. Trans. Abr. iii. p. 252.)

1689. William Cole. Purpurea Anglicana; being a discovery of a fish found on the shores of the Severn, which gives a curious Purple. London. 4to.

1689. Georgius Wolfgangus Wedel. Programma de Anil, Indico, et Glasto. Jenæ. 4to.

1701. Christophorus Fridericus Richter. Dissertatio de Cochinilla. Resp. Frid. Friedel. Lipsiæ. 4to.

1703. Georg Ernst Stahl. Gründliche Anleitung zur Färbekunst. Jena. 8vo.

1703. Georg Ernst Stahl. Volkommene Entdeckung der Färbekunst. Jena. 8vo.

1707. Fridericus Sigismundus Wurffbain. Dissertatio Inaug. de Rubea Tinctorum. Basileæ. 4to.

1708. Le Teinturier parfait, ou Instruction nouvelle et générale pour la Teinture des Laines, &c. &c. Paris. [Reprint of Colbert's Code.]

1709. Curioser und vollkommener Färber. Nürnberg. (Second edition, 1711. 2 vols.)

1711. R. P. Cœurdieu. Sur la Fabrication des Toiles peintes des Indes. (See Lettres Edifiantes, t. xxvi.) Paris.

1711. René Antoine Farchault, Sieur de Reaumur. On the Purple of the Ancients. (See Mémoires de l'Académie des Sciences, 1711.) Paris.

1711. Luigi Ferdinando Marsilli. Annotazioni intorno alla Grana de' Tintori detta Kermes. Venezia. 4to.

1716. Suite du Tenturier parfait, &c. (A Translation of Rosetti's work, Plictho dell' Arte de Tentori, &c.) Paris.

1721. Ars Tinctoria, oder gründliche Anleitung zur Färbekunst. Frankfurt.

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1728. Peter Antonio Micheli. Nova Plantarum Genera. Firenze. fol.

1729. Melchior de Ruuscher. Natuerlyke Historie van de Couchenille, betweezen mit authentique documenten. Amsterdam. 8vo.

1735. Beaulieu. [Report made to Dufay of his Dyeing Experiments at Pondicherry.] Paris.

1737. Dufay. [Colbert's Code of Instructions (1669), amended and republished.] Paris.

1737. Dufay. Observations Physiques sur le Mélange de quelques Couleurs dans la Teinture. (Mémoires de l'Académie des Sciences.) Paris.

1737–38. Dufay. Mémoires sur la Teinture. (See p. 244, t. viii., and p. 319, t. ix., de l'Histoire de l'Académie des Sciences.) Paris.

1738. Dufay. Traité sur les Toiles peintes. Paris.

1738. John Hoofnal. New practical Improvements and Observations on Colours, &c. London. 8vo.

1742. R. P. Cœurdieu. Sur la Fabrication des Toiles peintes des Indes. (See Lettres Edifiantes, nouvelle édition, t. xxvi. p. 172.) Paris.

1748. [Scheffer published a small work on Dyeing (Essai sur l'Art de la Teinture), afterwards republished, with notes, by Bergman.]

1750. Jean Hellot. L'Art de la Teinture des Laines et Étoffes de Laines. Paris. 12mo.

1751. Scheffer. [Process for Dyeing Scarlet.]

1756. W. Higgins. Essay on the Theory and Practice of Bleaching 8vo.

1756. Francis Home. Experiments on Bleaching. Edinburgh. 8vo. (German edition. Leipzig, 1777.)

1756. Andrea Elia Büchnero. Dissertatio de Indo Germanico, sive Colore cæruleo solido ex Glasto. Resp. Jo. Chrph. Ebel. Halæ. 4to.

1758. Robert Dossie. The Various Manners of Staining. (See Handmaid to the Arts. London. 8vo.)

1758. Report respecting the Importation and Growth of Madder. Dated 27 Feb. 1758. (House of Commons Journ., vol. 28, p. 108.)

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1759. Gaspar Neumann. Chemical Works. Translated by Dr. W. Lewis. London. 4to.

1759. Carl Linnæus. Dissertatio: Plantæ Tinctoriæ. Resp. Engelb. Jörlin. Upsalæ. 4to.

1760 (?) G. Gottl. Richter. Progr. de Purpuræ Antiquo et Novo Pigmento.

1760. Q——. Traité des Toiles Peintes. Paris.

1760 (?) Joseph Macquer. Art of Dyeing. Translated by Hellot.

1762. Georgius Fridericus Steinmeyer. Dissertatio Inaug. de Rubia Tinctorum. Argentorati. 4to.

1763. Moses Lindo. Of a new Dye from the Berries of a Wood in South Carolina. (Phil. Trans. Abr., xii. 4.)

1763. Joseph Macquer. Art de la Teinture en Soie. Paris.

1763–6. William Lewis. Commercio-Philosophico-Technicum; or the Philosophical Commerce of the Arts. London. 4to.

1765. Elie Monnereau. Le parfait Indigotier, ou Description de l'Indigo. Amsterdam. 12mo.

1766. L'Abbé Jaubert. Dictionnaire Raisonné des Arts et Métiers (art. Toiles peintes.) Paris.

1768. Joseph Macquer. [Process for Dyeing Scarlet upon Silk.] (Mémoires de l'Académie Royale des Sciences.) Paris.

1768. Juan Pablo Canals y Marti. Memorias sobre la Grana Kermes de España, que es el Coccum, o Cochinilla de los antiguos. Madrid. 4to.

1770. Delormois. Art de faire les Toiles Peintes à l'instar d'Angleterre. Paris. 12mo.

1772. Le Chevalier de W. Encyclopédie Pratique. Liège.

1772–3. Poerner. Chemische Versuche und Bemerkungen zum Nutzen der Färbekunst. Leipzig. 3 vols. 8vo.

1773. Nicolaus Dorph Gunnerus. De Usu Plantarum Indigenarum in Arte Tinctoria. Hafniæ. 8vo.

1774. James Clegg. Observations and Experiments on Dyeing Black. (Phil. Trans. Abr. xiii. 493.)

1776. Le Pileur d'Apligny. L'Art de la Teinture des Fils et Étoffes de Coton; précédé d'une Théorie nouvelle

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des véritables de la fixité des Couleurs de Bon Teint, et suivi des Cultures du Pastel de la Gaude et de la Garand. Paris.

1776. Johannes Svenonius. Specimen de Usu Plantarum in Islandia indigenarum in Arte Tinctoria. Resp. Enarus Biarnesen Thorlacius. Hafniæ. 8vo.

1777. Edward Hussey Delaval. An Experimental Inquiry into the Cause of the Changes of Colours in Opake and Coloured Bodies, with an Historical Preface, &c. London. 4to.

1778. Dictionnaire Encyclopédique (art. Toile Peinte). Paris.

1778. Joseph Macquer. Dictionnaire de Chimie. Dernière édit. (Art. Teinture.) Paris.

1778. James Haigh. The Dyer's Assistant. Translated from the French. Leeds. 12mo.

1779. James Haigh. A Hint to the Dyers and Clothmakers. London. 8vo.

1779. Report on John Berkenhout's Petition respecting his discovery of a Scarlet Dye. Dated 12 May, 1779. (House of Commons Journ., vol. 37, p. 392.)

1779. John Berkenhout. [Process for Dyeing Scarlet, Crimson, and other Colours upon Cotton and Linen, communicated by order of the Lords of the Treasury to the Company of Dyers in the City of London, 26th August 1779, and for which discovery the author obtained 5,000*l*. from the Government.]

1780. Roland de la Platrière. L'Art du fabriquant de Velours, suivi d'un Traité de la Teinture et de l'Impression des Toiles. (See also Arts et Métiers, t. xix.)

1780. Roland de la Platrière. L'Art de préparer et d'imprimer les Étoffes de Laine.

1780. Joh. Nic. Bischoff. Versuche einer Geschichte der Färberkunst, &c. Stendal.

1782. James Clegg. Account of a Substitute for Verdigris in dyeing Black. London. 8vo.

1785. Edward Hussey Delaval. An Experimental Inquiry into the Causes of the Permanent Colours of Opake Bodies. Warrington. 8vo.

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1785. J. Frieder. Gmelin. De Tingendo per Nitri Acidum, sive Nudum, sive Terra, aut Metalli saturatum serico. Erfurti.

1785. Edouard Banchroff. Instruction sur l'Usage et l'Emploi du Quercitron dans la Teinture et les Imprimeries d'Indiennes. (Traduite en Français, et insérée dans les Annales des Arts et Manufactures, t. xii. pp. 18 et 131, en 1805.)

1785. An Act for vesting in Edward Bancroft, Doctor of Physic, the sole Property of his Invention or Discovery of the Use and Application of certain Vegetables for Dyeing, Staining, Printing, and Painting certain valuable Colours, &c. (25 Geo. III., c. 38. See Patent Nº 1103, 23 Oct. 1775.)

1785. Poerner. Anleitung zur Färbekunst. Leipzig.

1785. Ephraim Chambers. Cyclopædia, or General Dictionary of Arts and Sciences. (Art. Dyeing Ingredients.) London. 4 vols. fol.

1786. Collomb. Observations sur la Dissolution du Vernis de la Soie. (Journ. de Phys., Août.)

1786. Jean Senebier. Mémoires Physico-Chimiques sur l'Influence de la Lumière Solaire pour modifier les Etres de trois Régnes de la Nature, et surtout ceux du Régne Vègètal. Genève, 1782. 3 vols. 8vo.

1786. John Wilson. An Essay on Light and Colours, and on what the Colouring Matters are that dye Cotton and Linen. Manchester. 8vo.

1786. L. A. Dambourney. Recueil de Procédés et d'Expériences sur les Teintures solides, que nos Végétaux indigênes communiquent aux Laines et aux Lainages. Paris.

1786. Report on Louis Borell's Petition for a Reward for discovering his Method of Dyeing the Colour of Turkey Red upon Cotton Hanks and in the Piece. Dated 3 April 1786. (House of Commons Journ., vol. 41, p. 467.)

1786. Christian Friedrich Reuss. Kenntniss dererjenigen Pflanzen die Mahlern und Färbern zum Nuzen gereichen können. Leipzig. 8vo.

1787. Hoffman. Commentatio de vario Lichenum usu. Lyons.

1787. Scheffer. Essai sur l'Art de la Teinture. (Translated from the German, with Notes, by Bergman.) Paris.

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1787. Thiery de Menonville. Traité de la Culture du Nopal et de l'Education de la Cochenille. Cape François. 8vo. [Quoted in Annales de Chymie.]

1788. John Michael Hausmann. Mémoire sur l'Indigo et ses Dissolvans. (Journal de Physique for March.) Paris.

1788? Le Pileur d'Apligny. Essai sur les Moyens de perfectionner l'Art de la Teinture.

1788–90. James Anderson. Letters to Sir Joseph Banks, Bart., on the Subject of the Cochineal Insects discovered at Madras. London and Madras. 8vo.

1789. Richard Kirwan. On the Alkaline Substances used in Bleaching, and on the Colouring Matter of Linen Yarn. (Trans. Irish Acad. iii.)

1789. Art of Dyeing Wool, Silk, and Cotton. London. 8vo.

1789. De Cossigny de Palma. Memoir, containing an abridged Treatise on the Cultivation and Manufacture of Indigo (with several Memoirs on the Process observed in different parts of India). Calcutta. 4to.

1790. Thomas Henry. On the Nature of Wool, Silk, and Cotton as Objects of the Art of Dyeing; on the various Preparations and Mordants requisite for these different Substances; and on the Nature and Properties of Colouring Matter, &c. (Memoirs of the Lit. and Phil. Soc. of Manchester, vol. iii. See also, for French Translation, Annales des Arts et Manufact., t. iii. p. 260; t. iv. p. 84. Paris, 1801.)

1790. John Michael Hausmann. Théorie de la Teinture. (Annales de Chimie, t. vii. p. 237.) Paris.

790. The Art of Dyeing Wool, Silk, and Cotton. Translated from the French of MM. Hellot, Macquer, and Le Pileur d'Apligny. London. 8vo.

1790. Robert Kerr. Essay on a New Method of Bleaching by means of Oxygenated Muriatic Acid, &c. From the French of Berthollet. Edinburgh. 12mo.

1790. Johann Philipp Vogler. Versuche mit den Scharlachbeeren in Absicht ihres Nuzens in der Färberkunst. Wezlar. 8vo.

1791. Hugh Martin. Account of Principal Dyes employed by North American Indians. (Trans. Amer. iii. 222.)

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1791. E. L. Berthollet. Elements of the Art of Dyeing Translated from the French by W. Hamilton. London. 2 vols. 8vo.

1791. James Martin. An Essay on the Art of Dyeing. [Canterbury ?]

1791. E. L. Berthollet. Elémens de l'Art de la Teinture. Paris.

1791. Poerner. Instruction sur l'Art de la Teinture, et particulièrement sur la Teinture des Laines. [Translated from the German, with Notes by Desmarets and Berthollet.] Paris.

1792. C. O'Brien. A Treatise on Calico Printing, Theoretical and Practical. London.

1792. An Act for vesting in James Turner the sole Use and Property of a certain Yellow Colour of his Invention, &c. (Act 32 Geo. III., c. 72. See Patent N° 1281, 26 Feb. 1781. See also Turner *v.* Winter, Durnford and East, vol. 1, p. 602, Action for Infringement.)

1793. A brief State of the Question between the Painting and Printing Calico, and the Woollen and Silk Manufacturers. London. 8vo.

1793–4. L. A. Dambourney. Recueil de Procédés et d'Expériences sur les Teintures solides. Nouv. édit. Paris. 8vo.

1794. Edward Bancroft. Experimental Researches concerning the Philosophy of Permanent Colours, and the best means of producing them by Dyeing, Calico Printing, &c. London. 8vo.—Second edition. London, 1813. 2 vols. 8vo.

1794. Mrs. Fulhame. An Essay on Combustion, with a view to a new Art of Dyeing and Painting. London. 8vo.

1794. Antoine Laurence Lavoisier. Rapport sur la Procédé, &c. [Report on Berthollett's Process for Bleaching Linen, read at the Lyceum, May 5, 1794.] Paris.

1795. James Anderson. An Account of the Importation of American Cochineal Insects into Hindostan. Madras. 8vo.

1797. Baumé. The Process of giving a beautiful White Colour to Raw Silk without scouring. (See Nich. Journ. vol. i. p. 32.) London.

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1797. John Beckmann. A History of Inventions and Discoveries. Translated from the German by William Johnston. London. 3 vols. 8vo.

1798. Jean Antoine Claude Chaptal. Observations on the Soap of Wool, and its Uses in the Arts. (Nich. Journ. i. 40.) London.

1798. Pajot des Charmes. Art du Blanchiment des Toiles, Fils, et Coton de tout genre. Paris.

1798. Theophilus Lewis Rupp. On the Process of Bleaching with the Oxygenated Muriatic Acid, and a Description of a new Apparatus for Bleaching Cloths with that Acid dissolved by Water, without the addition of Alkali. (Nich. Journ., ii. p. 268.)

1798. Theophilus Lewis Rupp. Note on the Bleaching of Cotton Fabrics. (See Memoirs of the Lit. and Phil. Soc. of Manchester.)

1799. Theophilus Lewis Rupp. Note sur le Blanchiment des Toiles de Coton. (Annales des Arts et Manufactures, t. i.)

1799. Richard Brewer. A Process for Dyeing a Nankin Colour. (Transactions of the Royal Dublin Society, vol. i.)

1799. Wm. Nicholson. Art of Bleaching Piece Goods, Threads, and Cottons, &c., by means of Oxygenated Muriatic Acid. From the French of De Charmes. London. 4to.

1799. John Michael Hausmann. Essays on the Art of Dyeing by means of Solutions of Tin, &c. (Nich. Journ., iii. 178.) London.

1799. William Higgins. Essay on the Theory and Practice of Bleaching, wherein Sulphuret of Lime is recommended as a Substitute for Potash. London. 8vo.

1799. William Henry, M.D. A general View of the Nature and Objects of Chemistry, and of its Application to Arts and Manufactures. London. 12mo.

1799. Homassel. Cours théorique et pratique sur l'Art de la Teinture et de la Fabrication des Indiennes.

17—. Procédé de la Teinture du Coton Rouge incarnat à l'Imitation de celle des Indes sur le Coton filé. (4to. tract, with MS. Translation, in the Library of the Society of Arts.)

17—. Le Beauvais-Raseau. L'Art de l'Indigotier. (Arts et Métiers.) 8vo.

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17—. L'Abbé Mazeas. Recherches sur la Cause physique de l'Adhérence de la Couleur Rouge aux Toiles Peintes qui nous viennent des Côtes de Malabar et de Coromandel. (Mémoires des Sçavans Etrangèrs, t. iv.) Paris.

1800. Christian Friedrich Buchnoz, Buchoz, or Bucholz. Manuel Tinctorial, &c. [A Tinctorial Manual of Plants useful in Painting and Dyeing.] Paris. 8vo.

1800. Goery. Art de Peindre et d'Imprimer les Toiles.

1800. Beaulieu. Art de Peindre et d'Imprimer les Indiennes.

1800. Beaulieu. Art de Peindre et d'Imprimer les Toiles en grand et en petit. Paris.

1800. Jean Antoine Claude Chaptal. Mémoires sur l'Art du Teinturier-Dégraisseur. (See Mémoires de l'Académie des Sciences, t. vi.) Paris.

1801. Jean Antoine Claude Chaptal. Mémoires sur un Procédé pour le Blanchiment qui vient du Levant. (Annales des Arts et Manufact. t. vi. p. 68.) Paris.

1801. Thomas Henry. Observation sur la Nature de la Laine, de la Soie, et des Cotons comme Objets de Teinture. (Annales des Arts et Manufact. t. iii. p. 260; t. iv. p. 31.) Paris.

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